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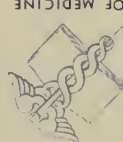
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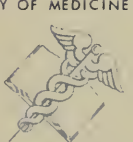
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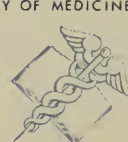
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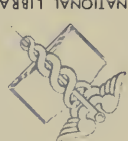
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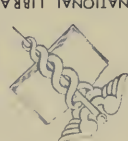
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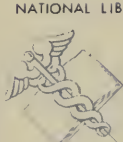
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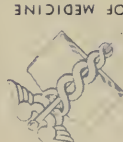
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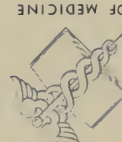
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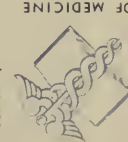
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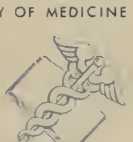
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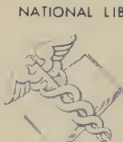
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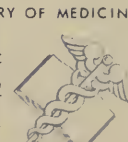
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BOOTH'S MANUAL
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DOMESTIC MEDICINE

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GUIDE TO HEALTH AND LONG LIFE:

A BOOK FOR EVERY FAMILY.

DESCRIBING IN PLAIN PRACTICAL LANGUAGE

THE LAWS AND RULES OF HEALTH
AND HOW TO REGAIN AND MAINTAIN IT.

A TREATISE ON

ANATOMY, PHYSIOLOGY & HYGIENE,
INCLUDING THE

TREATMENT AND CURE OF DISEASES OF ALL KINDS,
PLAIN DIRECTIONS FOR PREPARING AND ADMINISTERING MEDICINES.

SPECIAL ATTENTION GIVEN TO THE

TREATMENT of DISEASES of WOMEN & CHILDREN.

CAREFUL INSTRUCTIONS FOR THE

NURSING AND CARE OF THE SICK,

A COPIOUS MATERIA MEDICA, ETC. ETC.

WITH NUMEROUS ILLUSTRATIONS.

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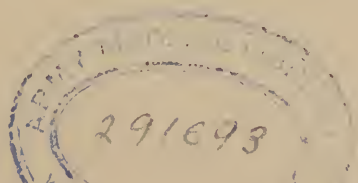
JOHN T. BOOTH, M. D.

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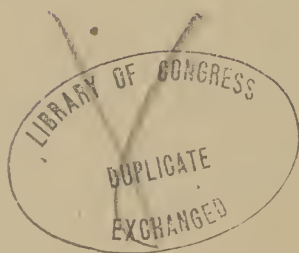
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INTRODUCTION.

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THE WRITER of to-day, in coming before the public, labors under difficulties of which the writer of a century ago never dreamed.

That which was then accepted without question by the laity, is not so received to-day.

Education has shed its beneficent influence abroad in the land, enlightening and elevating the masses ; scientific truths are being more universally comprehended ; the spirit of inquiry is becoming so marked as to cause comment on every side ; the masses are investigating and advancing in every direction that can improve them morally, mentally or physically ; grasping readily, and comprehending fully, that which but a short time ago was considered as belonging, only, to the realms of the expert and professional.

In offering this work on DOMESTIC PRACTICE, I appreciate fully, comprehending in all its force, the fact, that I am offering it to an enlightened and expert public ; therefore, have endeavored to make it *worthy a desirable place in every one of the MILLIONS OF HOMES in the land.*

In treating of various diseases etc., herein, I do not claim to have given only personal experience, few, if any, indeed none, have enjoyed so wide and varied a personal experience as to enable them to do that and maintain a high standard throughout. While I have given that which I have verified by personal experience, I have also drawn fully and unreservedly from many sources ; gleaned with care only from those high and unexceptional in authority, in matters medical, observations that have become with them, *well established and verified facts.* I have endeavored in presenting these facts, to do so, in so plain and practical a form that all who will avail themselves of the knowledge herein, may by exercising an ordinary degree of intelligence and care, save

themselves many fold the price of this volume in medical fees. This, however, is, I conceive, the very least and last of many inducements I might offer for your consideration, in presenting this work for your acceptance. Perhaps not the least among the many is that through its instrumentality the lives of your children and dear ones may be spared to you. How many of our heart's idols have been snatched, untimely from our loving embrace? What would we not have given for a knowledge of the insidious approach of the dread monster, that would have enabled us to have driven him harmless from our homes? Above price would have been that knowledge to the mother whose eyes are yet damp with the tears that have fallen upon the little casket, or to the father in whose heart there is left an aching void this world can never fill.

Ere I close, permit me to say, I firmly believe that, in presenting this work on DOMESTIC PRACTICE to the public, if its teachings are early and faithfully followed, I will, through it, be instrumental in repelling the presence of the unwelcome visitor from a very much larger number of homes than it could be possible for me to do through a more than usually large, long and successful practice—both public and private.

JOHN T. BOOTH, M. D.

Cincinnati, O.

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ANATOMY AND PHYSIOLOGY.

A KNOWLEDGE of human anatomy is not confined to the medical profession nor to professed scholars. It has become a part of general education, and is always attainable in our advanced schools, both public and private. And yet there are so many into whose hands this book will fall whose knowledge upon this all important subject is limited, that we will present in the most concise form possible a paper carefully digested from the leading thinkers of the age, to the end that you may the better care for yourselves and apply the principles and advice herein given to you. The study of anatomy becomes professional when it is pursued to minute details, but the general structure of the body, the uses of the several parts, the conditions upon which their healthy action depends, and the circumstances by which such action may be interfered with, should be understood by all. The physical well-being of ourselves, and of those with whom we stand connected depends in a great measure upon our acquaintance with these laws of our organization. Having found the system of Justin R. Loomis, President of the University of Lewisburg, and for many years a teacher, as being the most comprehensive, yet couched in language, far enough freed from its technicalities to be understood by the masses, have adopted it to the present work.

It is the object of anatomy to describe the human body, the structure, form and position of its several organs. In order to arrive at a convenient classification of these organs, it is necessary to consider the object for which the body is furnished. We, that is our minds, can exert no direct control over the material objects around us. We can not, for instance, by a mere exertion of the will, cause a book that lies before us to change its place. Such change can be made

only by the application of physical force. Perhaps we might have been so constituted that we might have controlled other things as we do our bodies ; but such power has been denied to us, and those who pretend to possess it either deceive, in reference to the effect itself, or the effect is produced by the application of ordinary physical force, exerted in such a way as to elude our observation. The most successful efforts of jugglery are of this last kind. The skill consists mainly in the power which performers acquire of moving the hands with wonderful accuracy, yet with a rapidity so great that the eye can not follow them. Thus, changes take place before the observer for which he can assign no cause ; but they are affected by the hand of the performer with a motion which is invisible only because of its rapidity. We do, more or less, control these objects ; but it is by the body as an intermediate agent. How the mind is brought into relation with this portion of matter, the body, so that it acts in obedience to our wills, is unexplained and inexplicable. All that we can say of it is, that it has pleased our Creator thus to constitute us ; and all the knowledge which we have of the external world comes to us by this connection of mind and body.

Bearing in mind, then, that the body is furnished us as the means by which we may become acquainted with, and operate upon external objects, we may inquire what kind of organization will secure this end. In the first place there must be a suitable mechanical structure. It must be sufficiently firm to support the weight and transmit the power which the purposes of life require ; and this firmness is secured by the frame-work of *bones* which the body contains. This frame-work must not be a rigid structure, but capable of various motions. The *joints* are provided to render these motions possible, and the *muscles* are the system of connections by which the several parts of the frame are acted upon in the performance of these functions. As a system of mechanism, the body is no more capable of moving itself than any other piece of machinery is. In the second place, then, the mind, regarded as the repository of voluntary power,

must have the means of applying its power. The *nervous system*, consisting of the *brain*, the *spinal chord*, the *nerves*, the organs of the external senses, are the means of applying this power to the mechanical system, as well as the means by which the mind acquires a knowledge of the properties of matter. It would seem that when these two systems are formed, and as long as they remain perfect, no others are necessary to perfect the body; and, like all material structures, it is liable to become injured, and is subject to ultimate decay. It therefore becomes necessary that there should be a third system of organs, which we may call the *repairing system*, designed to secure the growth which is required in the earlier periods of life, and to furnish the repairs which are required at every period. Our investigation of this subject will, therefore, be limited to an examination of these three systems, of which the body is mainly composed: namely, the *Mechanical System*, the *Nervous System*, and the *Repairing System*.

We will first treat of the mechanical system, which consists of the Bones, Joints and Muscles. The principal object of the bones is to constitute the frame-work of the body. Yet, they serve other important purposes, particularly that of protection to some of the more delicate organs. Thus, the cranium is designed to render the brain secure from external injuries, and the ribs are employed to form and protect the cavity in which the heart and lungs are lodged. It is interesting to trace the process by which the bones are developed. There is a period very early in our existence, but after the body has acquired its general form, when the skeleton contains no bone, but consists entirely of cartilage (gristle). These pieces of cartilage, which constitutes the first draft of the osseous structure, are traversed by minute blood-vessels, and particles of bone, conveyed by the blood, are deposited at points called centres of ossification, near the middle of each piece of cartilage, the corresponding cartilaginous particles being at the same time taken up by the circulating fluid, and carried away. Thus,

by a very slow process, the original skeleton is taken down and one of bone is built up.

When children have but little exercise, breathe impure air, or are confined to food having but little nourishment, the process of ossification is often arrested; and, as the body, which continues to increase in size, becomes too heavy to be supported by the cartilages, they yield and permanent deformity results. Though ossification commences sometime before birth, it is not completed till about the twentieth year of life. In certain parts the change is delayed much longer.

Thus the lowest portion of the breast bone is generally cartilaginous until extreme old age, and cartilages which connect the ribs with the breast-bone, in healthy persons, never become ossified. When a bone has been broken, it does not unite by a sudden deposition of bone.

There is a partial cure affected by a rapid deposition of cartilage between the broken surfaces, by which they are temporarily, though not very firmly, united. The complete ossification of this cartilage may require several months.

At the most vigorous period of life, when the bones have attained their full development, they contain about three-fifths of their weight of earthy matter, of which phosphate of lime is the principal part, and the remaining two-fifths is animal matter, mostly in the form of gelatine. Dr. Wilkes, in his recent work on physiology, remarks that "It is estimated that the bones of every adult person require to be fed with lime enough to make a marble mantel every eight months."

These two parts may easily be exhibited separately. When a bone is thrown into a fire, the animal matter which is distributed through it, becomes charred (converted into charcoal) by the heat, and it becomes black. The animal matter, however, soon burns out, and a white, brittle substance, the mineral matter of the bones, is left. The bones would probably become equally brittle during life if, by any vital forces, they were as fully deprived of animal matter.

But their *composition* varies with a person's age. Early

in life, the animal matter predominates and the bones are tough and flexible, though possessing less of firmness. This is the reason why there are so few permanent injuries from the accidents of childhood and youth. In advanced life the earthy matter predominates, and the bones become brittle, and when broken, less disposed to unite firmly.

The *form* of the bones are so various, that it can scarcely be employed in the classification of them. Yet it is convenient to speak of long bones, as those of the leg; of the flat bones, of which the cranium mostly consists, and of the square bones, such as are found in the wrist and ankle.

The structure of the bones is by no means as simple as it first appears. When bone begins to be formed, the osseous particles are so deposited as to form fine, stiff threads of bone, and hence the long bones are always fibrous, and, for the same reason, the flat bones have a radiated structure. (See Fig. 1.) The *outside* of the body of the long bones is very dense and compact; but, at a very little distance, the structure becomes porous, and the pores increase in size as they are situated further from the surface. Finally the centre is hollow. The *hollows* of the bones are filled with marrow, and the cavities of the porous portions are also filled with a fatty substance resembling marrow. By this arrangement nearly as great strength is secured as would be if the whole were of compact bone, while the weight is not more than half that of solid bone.



Fig. 1.—Exhibiting the radiation of the flat bones.

The *extremities* of the long bones also have the porous structure, and are much larger than the middle portions, in order to give strength to the joints by presenting large articular surfaces. The substance of the bones is everywhere (except in the teeth) traversed by blood-vessels, absorbents, and nerves, so that these solid parts are still living parts and are continually undergoing the processes of removal and renewal, like the other parts of the body.

It follows that children should not, before the bones have acquired their strength, be subjected to the severer kinds of labor, such as require great firmness of frame. They should not be required to lift great weights, nor carry heavy burdens; nor should they be confined for a long time to any one position.



Fig. 2.—Section of the thigh bone. *a a* The extremities showing the spongy texture. *b b*, the exterior of the body of very dense bone. *c*, the hollow of the bone filled with marrow.

The restlessness of children is natural, and is designed to prevent the distortions of body which would be likely to result from a child maintaining habitually the same position, when the bones are so yielding as to allow of their readily taking any form which a constrained position would tend to give.

Children at school often rest the elbows upon the table and allow the head and chest to fall forward; they thus become round-shouldered. Others acquire the habit of lounging, or resting one elbow in such a way as to give a lateral curvature to the spine. The feeling of lassitude and weariness, which rapid growth is likely to induce, may encourage these and other objectionable positions which are liable to result in permanent deformity.

The upright, erect position may be recommended as preferable, so far as it can be practiced, and yet this effort should not be carried too far, for, in the first place, to carry the head and shoulders too far back is as unnatural and as much a deformity as the opposite error, and secondly, the most natural erect position will become injurious if persisted in to weariness.

A large amount of exercise, and the frequent changes of position thus secured, are the best safe-guard against all the deformities which are likely to be contracted in childhood. It is thus seen that it is by means of these traversing organs that the bones are able to unite when they have been fractured, or to be repaired when they have been injured by disease.

The blood always contains, in solution, a small amount

of osseous matter, and both the formation and growth of bones take place by the deposition of these particles of bone. The bones increase in diameter by the deposition of layers of bone upon the outside, similar to rings of growth in a tree.

It will hereafter be shown that, by the process of life, the soft parts are constantly undergoing removal and renewal. Portions of every muscle, for instance, are every moment undergoing chemical change, losing their vitality, and requiring removal from the system. At the same time there is a renewal, by the deposition of new muscular fibre from the blood. These changes are essential for the continuance of life. It was discovered accidentally that the same changes take place in the bones. A dyer threw to some domestic animals madder from which most of the coloring matter had been extracted. Some of the coloring matter, however, remained, and upon killing the animals which had fed upon it, the bones were found to be tinged with it. Hence there must have been deposition of the coloring matter in the substance of the bone. By varying the experiment, feeding with madder, and then, for some time before killing withholding it, the bones were found of the ordinary color; thus proving that the coloring matter which was at first deposited had been absorbed and removed.



Fig. 3.—Bone of the arm. 11. Body of the bone. 22. The extremities (epiphyses). aa. Layers of cartilages, by which the body and epiphyses are connected.

The ends of a bone are so much larger than the middle, and so different in shape, that the bone would be deformed if its elongation took place by a deposition upon the ends. There is therefore a special provision for growth in this direction. A long bone has at least three centres of ossification: One for the formation of each extremity, and one for the formation of the body of the bone. (See Fig. 3.)

A dense, tough membrane, called the *periosteum* (bone envelope) surrounds the bones, except at their extremi-

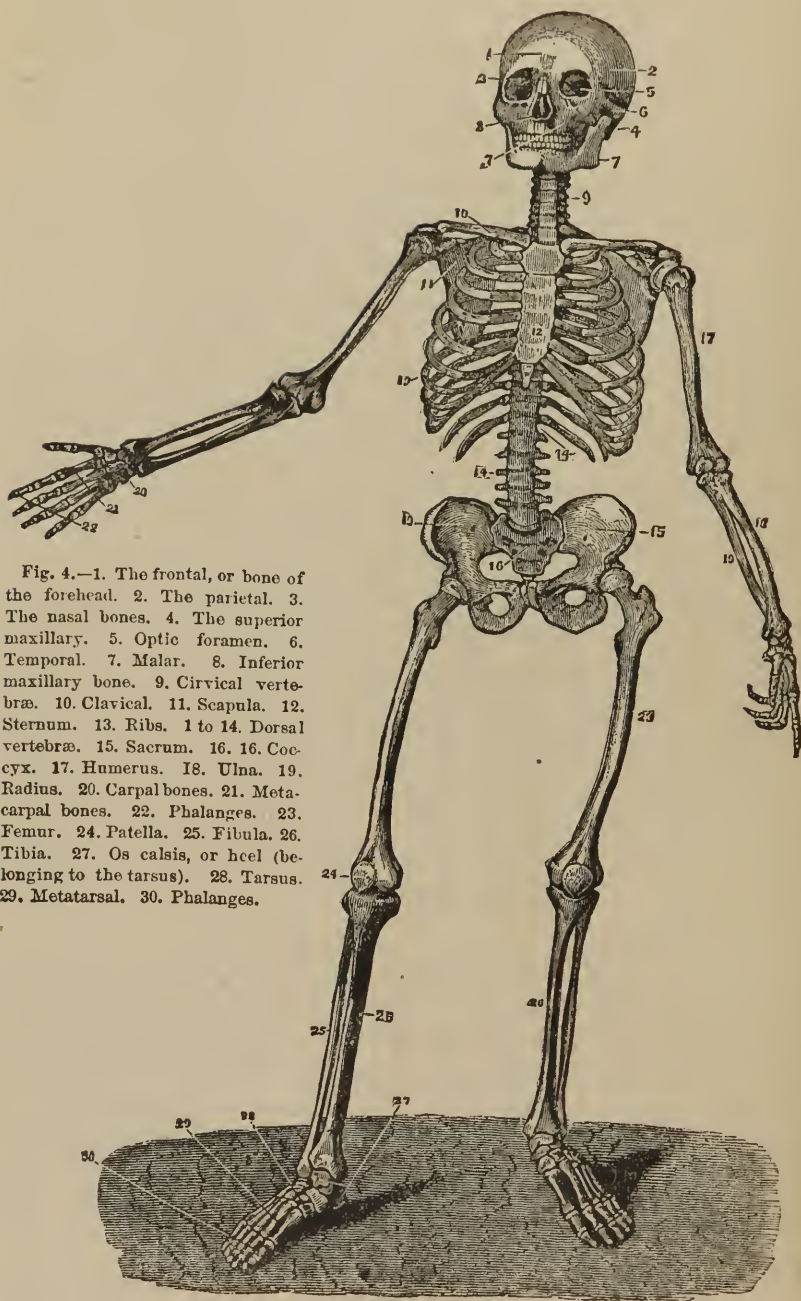
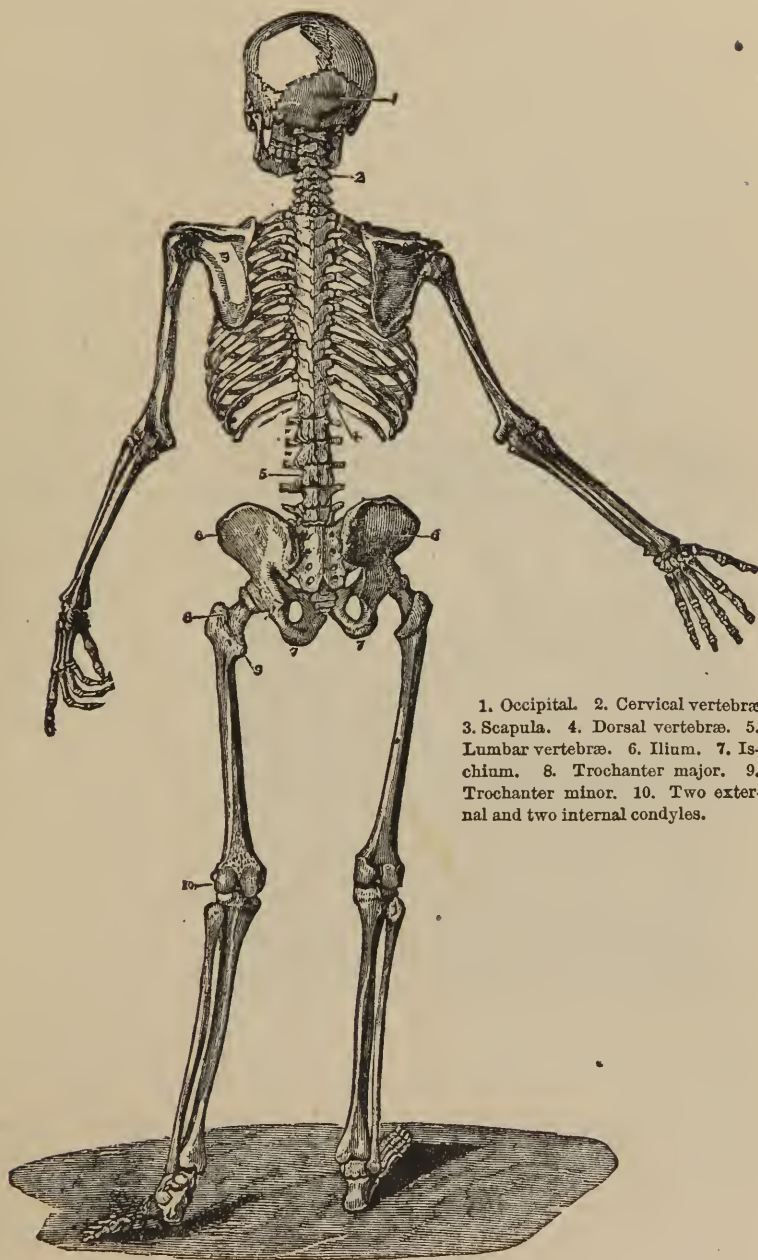


Fig. 4.—1. The frontal, or bone of the forehead. 2. The parietal. 3. The nasal bones. 4. The superior maxillary. 5. Optic foramen. 6. Temporal. 7. Malar. 8. Inferior maxillary bone. 9. Cervical vertebrae. 10. Clavical. 11. Scapula. 12. Sternum. 13. Ribs. 1 to 14. Dorsal vertebrae. 15. Sacrum. 16. Coccyx. 17. Humerus. 18. Ulna. 19. Radius. 20. Carpal bones. 21. Metacarpal bones. 22. Phalanges. 23. Femur. 24. Patella. 25. Fibula. 26. Tibia. 27. Os calcis, or heel (belonging to the tarsus). 28. Tarsus. 29. Metatarsal. 30. Phalanges.



1. Occipital. 2. Cervical vertebræ. 3. Scapula. 4. Dorsal vertebræ. 5. Lumbar vertebræ. 6. Ilium. 7. Ischium. 8. Trochanter major. 9. Trochanter minor. 10. Two external and two internal condyles.

ties. It serves to protect the bone, to supply it with its nerves and blood-vessels, and is the means by which the ligaments, tendons, and muscles are attached.

This membrane, though ordinarily possessing little sensibility, is sometimes subject to inflammation, when it becomes intensely painful. The felon and fever sore are diseases originating in this membrane.

The bones of the head include those of the cranium and those of the face. The bones of the cranium are eight in number. These bones are composed of external and internal plates, and an intervening porous portion, answering to the porous structure of the long bones, called the *diploë*.

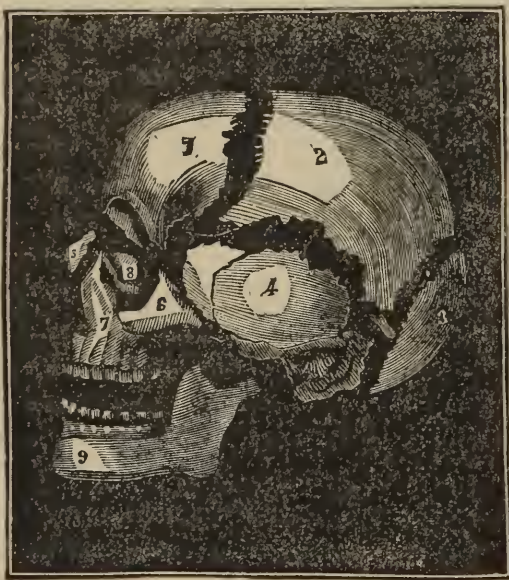


Fig. 6.—The bones of the skull separated. 1. Frontal, only half is seen. 2. Parietal (wall). 3. Occipital (back), only half is seen. 4. Temporal. 5. Nasal (nose.) 6. Malar (cheek). 7. Superior Maxillary (upper jaw) 8. Lachrymal (or *ossa unguis*, so called for being about the shape, size and thickness of the finger-nails.) 9. Inferior Maxillary (lower jaw) Between 4 and 6 a part of the sphenoid, or wedge-shaped bone is visible. Another bone not here represented assists in the formation of the skull and is called the Ethmoid, from its being sieve-like or full of holes. It is situated between the eye-sockets and form the roof of the nose. Bones 2, 4, 5, 6, 7, 8, are double. The small bone observable between 3 and 4, and others in the skull like it, are called *ossa triquetra*.

The cranium consists of but one bone. There have been many theories advanced about the use of the sutures, but reason points to the one, as mostworthy of belief, that they are

This spongy substance deadens the blow from a jar inflicted upon the outer plate. In early life, when the bones are yielding, this porous layer is not found. The accompanying cut shows the bones of the head and the curious manner in which they are joined together so that they will not slip by each other. They have a curious dove-tailed edge called sutures.

In advanced age these seem to close up so that the cranium consists of but one bone.

designed to admit of the expansion of the brain. Many practical investigations show that the absence of the sutures may be a cause of idiocy, by preventing the growth of the brain, and thereby destroying or impairing its functions.

The cranium presents a fine instance of the adaptation of the system to the circumstances in which it is placed at the different periods of life. In early infancy the cartilages are so wide and flexible that the form of the head may be considerably changed without injury, a fact upon which, at certain crises, the continuance of life often depends.

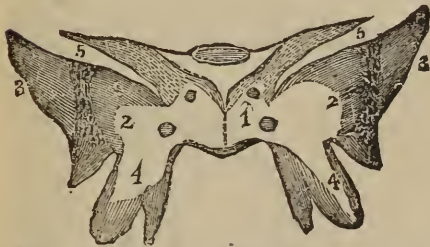


Fig. 7.—The Sphenoid Bone. 1. The body. 2, 3. The wings. 4, 4. The pterygoid process. 5 5. The superior foramen lacerum.

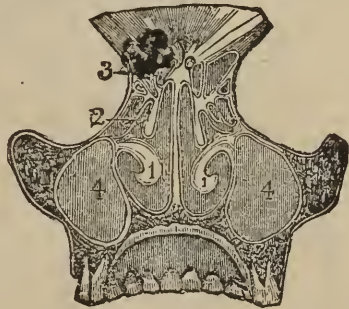


Fig. 8.

Children are constantly receiving falls, blows and thumps, in consequence of the incautiousness and recklessness natural to that period of life, which would be unsafe at a later period, but which seldom injure the brain, because the cranium is yet in so yielding a state, as to absorb the motions which they impart.

In manhood, the cranium remains in part cartilaginous, not so much so as to unfit one for the vigorous activities of life, and yet so far as to interpose something of security against accidents. This security is much less, however, than it was in childhood, for a greater degree of carefulness and forethought has rendered such security less necessary.

In advanced life the cartilages all become ossified; but at this period of life, also, severer labors are laid aside, and cautiousness of character begins to predominate, so that the brain needs fewer safeguards.

This is probably a reason why aged persons are often so

averse to noise, to the prattle of children, etc. It may be

peevishness, second childhood; it may, often probably does, arise from those physical changes in the structure of the cranium, by which the brain is affected sensibly, perhaps painfully, by the vibrations of the air.

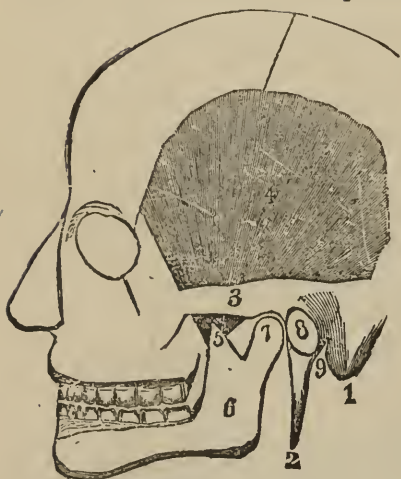


Fig. 9.—1, Mastoid process; 2, Styloid process; 3, Zygomatic process; 4, The temporal muscle, the lower portion passing under the zygomatic process, and its insertion into coronoid process of inferior maxillary process; 5, Coronoid process of inferior maxillary process; 6, Ramus; 7, Condyle of lower jaw; 8, Meatus auditorius externus; 9, Stylo mastoid foramen.

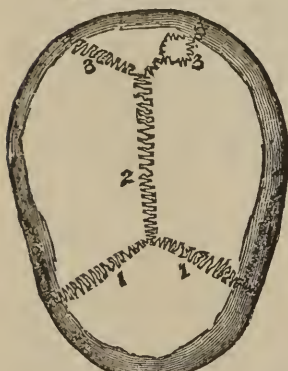


Fig. 10.—1, 1, The coronal sutures at front and upper part of cranium or skull; 2, 2, Sagittal on top of cranium; 3, 3, Lambdoidal suture on top of cranium.

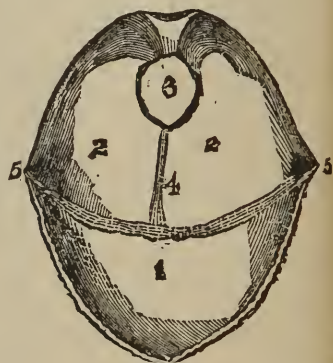


Fig. 11.

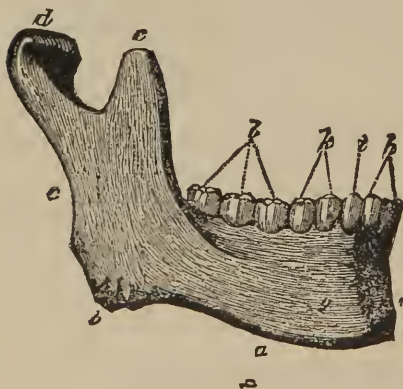


Fig. 12.—The lower jaw. d, the condoloid process; e, the coronoid process.



Fig. 13.—The hyoid bone. a, the body; b, the cornua.

Bones of the trunk consist of the bones of the spine, of the thorax, and of the pelvis.

The spine (See Fig. 14.) is a nearly vertical column, consisting of the sacrum as its base, upon which are piled twenty-four bones, called vertebræ, and below which is the small terminal bone called the coccyx.

The seven highest vertebræ are in the neck, and are hence called cervical vertebræ; twelve are in the back, and are called dorsal vertebræ; and the remaining five are in the loins, and are called lumbar vertebræ.

The processes are so arranged that a tube passes through each vertebræ, and as the bones are placed one upon another, these tubes become continuous through the spinal column, and form the *spinal canal* in which the spinal cord is lodged. This nervous cord is connected with the base of the brain and is a kind of continuation of it. It is an easy matter to get a view of this cord in any animal after the butcher has split the bones with his ax, exposing more or less of it to our view; or it may be dissected out carefully in fishes, birds, or other small creatures, and studied with care. It is a soft, delicate, pulpy mass of gray and white substance, protected from injury by the bony prominences that arch around it in a very wonderful way. This cord, like the brain, is divided into two lateral halves. It would be tedious to discuss at great length the anatomy of the cord, which is exceedingly curious, and difficult to be



Fig. 14.—The Spinal Column. 1, 2, Cervical vertebræ; 3, Dorsal vertebræ; 4, Lumbar vertebræ; 4, 5, The sacrum; 5, 6, The coccyx; there are often several coccygeal bones.

understood without special study in the dissecting room. The anterior lateral half is entirely insensible to irritation and serves as a conductor of stimulus from the brain to the



Fig. 15.—The body of a vertebrae *c*, the spinous process. *d, d*, the transverse process. *b, b*, the oblique process. *f*, the spinal canal.



Fig. 16.—The body of a cervical vertebra. 2, The canal; 3, 3, the oblique process; 4, the spinous process, with its cleft extremity.

muscles. Cut this half of the cord, and those parts below it lose their power of motion. If the posterior or back part is cut, the power of motion is not lost. When the will directs that certain muscles shall act, it sends the order down through this half of the cord, which, if not injured, carries it to the muscles, and they obey. If, however, there be any

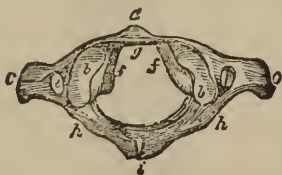


Fig. 17.—The atlas. *b, b*, the depression for receiving the condyles of the occipital bone; *c, c*, the transverse processes; between *f* and *g* is a strong ligament by which the dentatus is prevented from pressing upon the spinal marrow.



Fig. 18.—The axis. *a*, the dentatus, a prolongation of the body upward through the hole *g* in the atlas.

injury to this half, the connection is severed, and the mandates of the will are not, and cannot be carried out.

The *bones of the thorax* are the sternum and the ribs. The *sternum* is the flat bones situated on the front side of the thorax. It is about eight inches in length, and consists of three pieces, of which the lower one is cartilaginous, except in very old age. Its object is to provide for the joining of the ribs, and to protect the cavity of the thorax from compression of the thorax.

The ribs are the twenty-four slender bones which protect the sides of the thorax. They extend from the spine

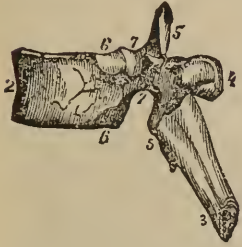


Fig. 19.—A dorsal vertebra. 2, the body; 7, 7, The notches to form the intervertebral foramina; 3, The spinous process, very long and very much inclined.

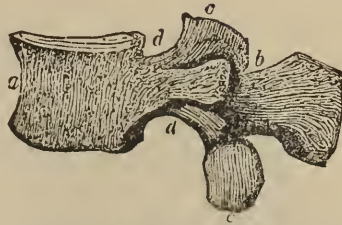


Fig. 20.—A lumbar vertebra. a, the body; b, the spinous process; c, c, the articulating (oblique) processes; d, d, the intervertebral notches.

around the body toward the sternum, and are lengthened out

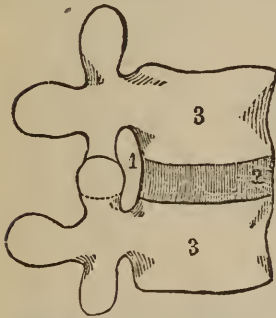


Fig. 21.—3, 3, Two vertebrae; 2, The intervertebral substance between them; 1, The intervertebral foramen.

by cartilage to their sternal articulation. The upper seven on each side articulate with the sternum by separate cartilages, and are called true ribs. The remaining five

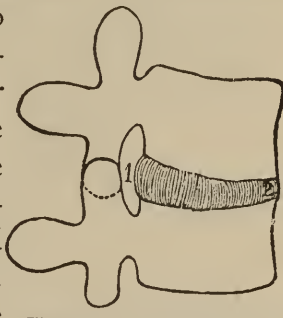


Fig. 22.—Two vertebrae, with the form of the intervening cartilage produced by bending the spine.

have their cartilages united into one, and are called false ribs. Frequently, however, the lowest ribs, and sometimes the lowest two ribs, are not connected with the sternum by cartilage, and are called floating ribs.

Bones of the pelvis. The pelvis is composed of the ossa innominata, sacrum, and the coccyx. The *sacrum* and *coccyx* have before been referred to as forming the lower part of the spine. They also constitute the back part of the

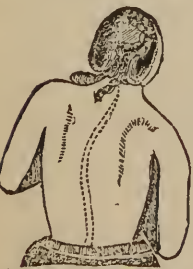


Fig. 23.—Lateral curvature of the spine.

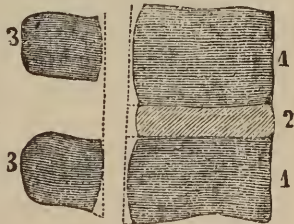


Fig. 24.

pelvis. The *ossa innominata* (bones without a name) are two irregularly shaped

bones proceeding from the sacrum, one on each side and meeting in front.

The pelvis furnishes the vertical support for the abdominal viscera. It also gives support to the spine, and hence to the head and trunk.

The pelvis furnishes the means of attaching the lower extremities.

Bones of the upper extremities. They are the scapula, clavical, bones of the arm, forearm and hand.

Bones of the lower extremities. These are the femur, the tibia, the

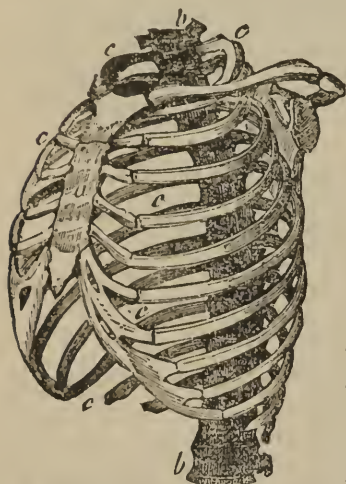


Fig. 25.—The thorax *b, b*, the spine; *a*, the sternum.



Fig. 26.—The sternum. From *c* to *g* is the middle portion of bone. The apparent separation at *d* and *e* do not indicate separate bones.



Fig. 27.—One of the ribs. *a*, the articulation with the vertebra; *c*, articulation with the transverse process.

this a layer of cartilage covers every articular surface. Thus, instead of bone, there are brought together two smooth surfaces of an elastic nature between which there is scarcely any friction (see Fig. 44). A cartilage which covers a con-

securing freedom of motion. If the surfaces of bone were in direct contact the requisite motions would rapidly wear them, and destroy the joint. To obviate

vex articular surface is thickest in the middle, as can be seen, and that which covers the concave surface is thickest around the edge. This capsule grows thinner and harder in old age.

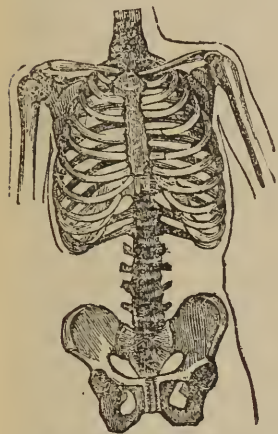


Fig. 28.—A fully developed chest.

Every joint is inclosed in a capsule which binds the bones together and prevents the adjacent parts from falling in and being caught between the bones as they move upon each other. This capsule is a continuation of the periosteum,

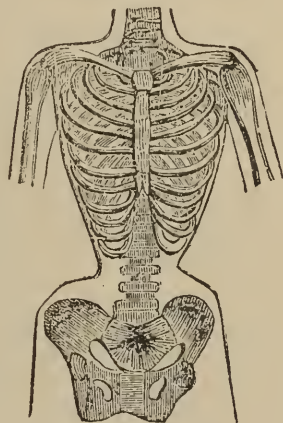


Fig. 29.—Chest contracted by compression.

which, instead of closing around the end of the bone, becomes detached from it where the articular surface commences, and, passing over the joint, attaches itself to the next bone. The joint is therefore contained in a sac impervious to air, which contains a sticky fluid called *synovia*, the office of which is the same as that of the lubricating substances used in all kinds of machinery to diminish the friction of solids moving upon each other.

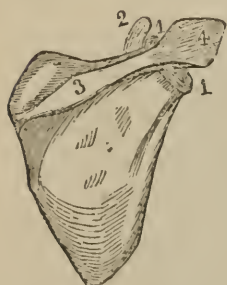


Fig. 30.—The pelvis. 1, The Ilium; 2, The sacrum; 3, The coccyx; 4, The acetabulum.

In addition to the capsular support of the joints, they are supplied with numerous *ligaments* as protection against dislocation. They are sometimes only a thickened and strengthened states of the capsules at exposed points. Other ligaments are quite separate from the capsule.

Fig. 45 represents the inside of the hand with the muscles, and will give a good general idea of the abundance of ligaments with which the joints are furnished, and the

amount of protection which they give. The ligaments are severally adapted to the amount of motion which the joints require. Thus the ligaments of the shoulder-joints are,



The scapula. 1, 1, The glenoid cavity; 2, 2, The coracoid process; 3, 3, The spine of the scapula; 4, 4, The acromion.

within certain limits, as elastic as india-rubber. Otherwise the joint would be comparatively useless. But the ligaments which bind the square bones of the wrist or foot together, have scarcely any elasticity. If they had they would answer no good purpose in those places.

Again, there is a striking adaptation in the amount and arrangement of the ligaments to the degree of danger to which a joint is exposed. When a joint is otherwise weak, especially



Fig. 32.



Fig. 33.



Fig. 34.

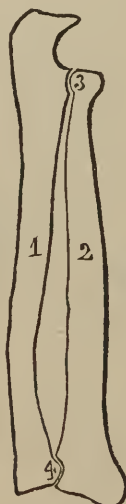


Fig. 35.



Fig. 36.



Fig. 37.

Fig. 32. The clavical; e, its articulation with the sternum; d, its articulation with the shoulder.
Fig. 33. The humerus. 1, the shaft; 2, the head fitted to the glenoid cavity; 5, 6, external and internal condyles.

Fig. 34. The ulna. a, the sigmoid cavity; b, the coronoid process; c, the olecranon.

Fig. 35. The radius.

Fig. 36. Bones of the forearm.

Fig. 37. The hand. 1, 1, the carpal bones; 2, 2, the metacarpal bones; 3, 3, 4, 4, 5, 5, phalanges.

if it is an important one, greater care is taken to protect it by ligaments. In the knee-joint, for instance, if the bones were larger the joint would be stronger, but the limb would

be more cumbrous. With the size which the bones of the knee have, it might be asked, how its strength may be made the greatest, while yet the freedom of motion is not interfered with. The question is solved in the construction of



Fig. 38.

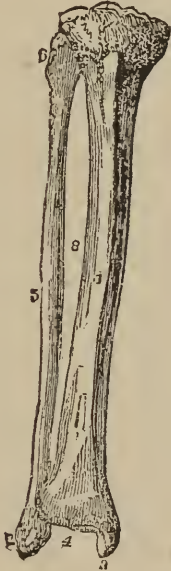


Fig. 39.

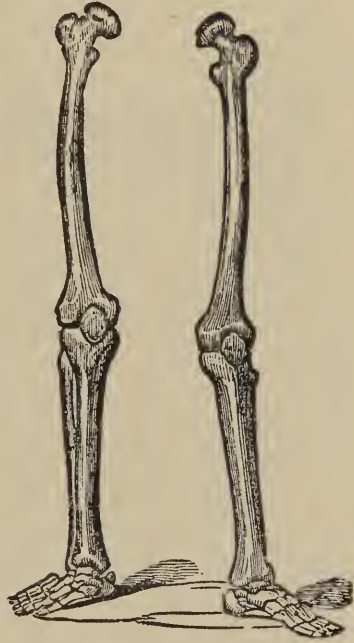


Fig. 40.

Fig. 38. The Femur. 1, the shaft; 2, the trochanter minor; 3, the head of the femur; 4, the trochanter major; 5 and 6, external and internal condyles; 7, the articulating surface for the knee joint.

Fig. 39. The tibia; 5, the fibula; 2 and 3, the external and internal malleolus; 4 and 7 articulating surfaces.

Fig. 40. The bones of the lower extremities.

other joints. Besides a liberal supply of ligaments passing across the joint from bone to bone, outside of the capsule, there are

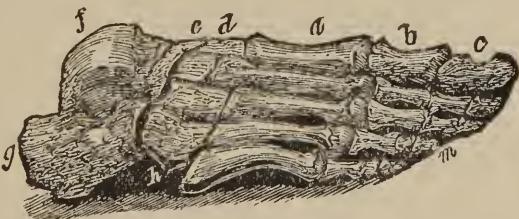


Fig. 41.—Bones of the foot. *a*, the metacarpal bones; *b*, *c*, *m*, the phalanges; *f*, the astragalus; *g*, the os calcis.

within the capsule two ligaments originating in the deep groove which separates the external and internal condyles crossing each other like the letter X (and hence called crucial ligaments), and attached to the head of the tibia. The advantage of this arrangement

is that the protection is almost in the center of the joint, and also that the direction of the ligament is such, that any force tending to cause dislocation, must be exerted in a direction almost lengthwise of the one or other of these ligaments. Their position is therefore such as to make them operate to the

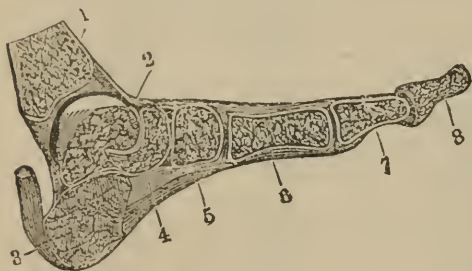


Fig. 42.—Foot lengthwise. 1, the tibia; 2, the astragalus; 3, the os calcis, with the tendon of the muscle attached; 4, 5, bones of the foot; 6, a metatarsal bone; 7, 8, phalanges. In this figure the arched form of the foot is shown.

greatest possible advantage. Another instance of a similar kind is the round ligament of the hip joint (See Fig. 47) which has very great strength, and passes directly from the head of the femur to the center of the acetabulum. It is sufficiently elastic to allow of the

requisite motion, but not of motion to such extent as to render dislocation possible without breaking the ligament.

General description of the muscles. The muscles are either *voluntary, involuntary or mixed.* The heart and

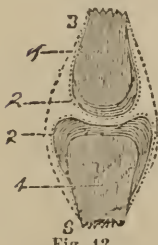


Fig. 43.

Fig. 43.—1, Two bones connected by a joint. 2, 2, The cartilages by which the ends are covered. The synovial membrane, represented by the dotted lines, covers the cartilage, and extends back to 2, 3. Then follows the capsule, which lies outside of the dotted lines, and is not here represented.

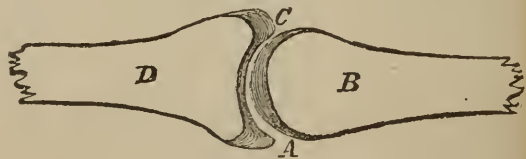


Fig. 44.

stomach are instances of involuntary muscles, that is, muscles that contract and relax under a stimulus which is independent of the will. Those muscles upon which respiration depends are both voluntary and involuntary, that is, they contract and relax with regularity when the attention is withdrawn from them, but they can still be controlled by the will. Those muscles upon which the motions of walking, eating, winking, writing, etc., depend, and which, in a state of health, contract and relax only in obedience to the will, are called

voluntary muscles. Those muscles which are partially or wholly controlled by the will, constitute the lean meat of animals. They lie upon the bones, filling the depressions, and giving the general fullness and roundness of contour which belong to the different parts of the body. The fleshy part of the muscles consists of ultimate fibres, too minute to be well exhibited, except by a glass of high magnifying power. Several of these fibres are collected together into a bundle, and inclosed in a sheath of cellular substance. Cut 49 shows a film of cellular membrane. The membrane stripped from the leaf of fat taken from a fat animal, consists of several thicknesses of cellular tissue. At the extremities of the muscle the cellular sheaths which incloses the several fibres, and which incloses the whole muscle, are condensed into a firm, inelastic tendon.

A correct idea of the use and action of tendons may be obtained by examining the leg of a fowl. The tendons are the small

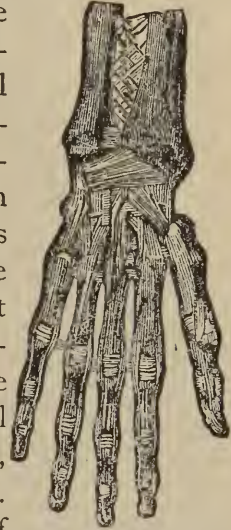


Fig. 45.—Represents the ligaments which pass from the bone to another in the hand. Also the ligament which connects the bones of the forearm.



Fig. 46.—The back side of the knee joint. *f, g.* The crucial ligaments, by which the joint is protected in the center.

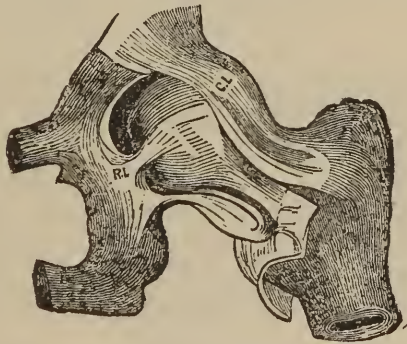


Fig. 47.—*R, L.* The round ligament. *C, L.* The capsular ligament.

white cords, which are prolongations of the muscles situated in the thigh ("drum stick"). By pulling the cords on one side, the parts of the claw contract; by pulling them on the other side the claw opens. "The muscles, though all com-

posed of bundles of fibre, or fasciculi, are yet very different in form. In some, the fasciculi are all parallel with the general direction of the muscle, and it becomes spindle-shaped



Fig. 48.—The direction of muscular motion changed by ligaments.

as Fig. 51. Sometimes they diverge from a point and the muscle is fan-shaped (Fig. 52). Sometimes the fasciculi are oblique to the general direction of the muscle, and are arranged along one or both sides of a tendon, and the muscles are said to be peniform, as Fig. 53. Still others are circular, and by contraction close the opening which they encircle as the mouth and the eye. They are called orbicular or sphincter muscles (Fig. 54). The figures of the elbow-joint and of the muscular coating of the stomach will show how the different kinds of muscles, are wisely arranged to subserve their purposes.



Fig. 50.



Fig. 49.

Fig. 49.—A film of cellular membrane.

Fig. 50.—a. The ligament which passes under the bifurcated ligament (b.) to go to the last joint of the finger.

Fig. 51.—A spindle-shaped muscle.

Fig. 52.—A radiated muscle.

Fig. 53.—A penniform muscle.

Fig. 54.—A sphincter muscle.



Fig. 54.



Fig. 51.

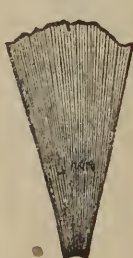


Fig. 52.

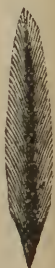
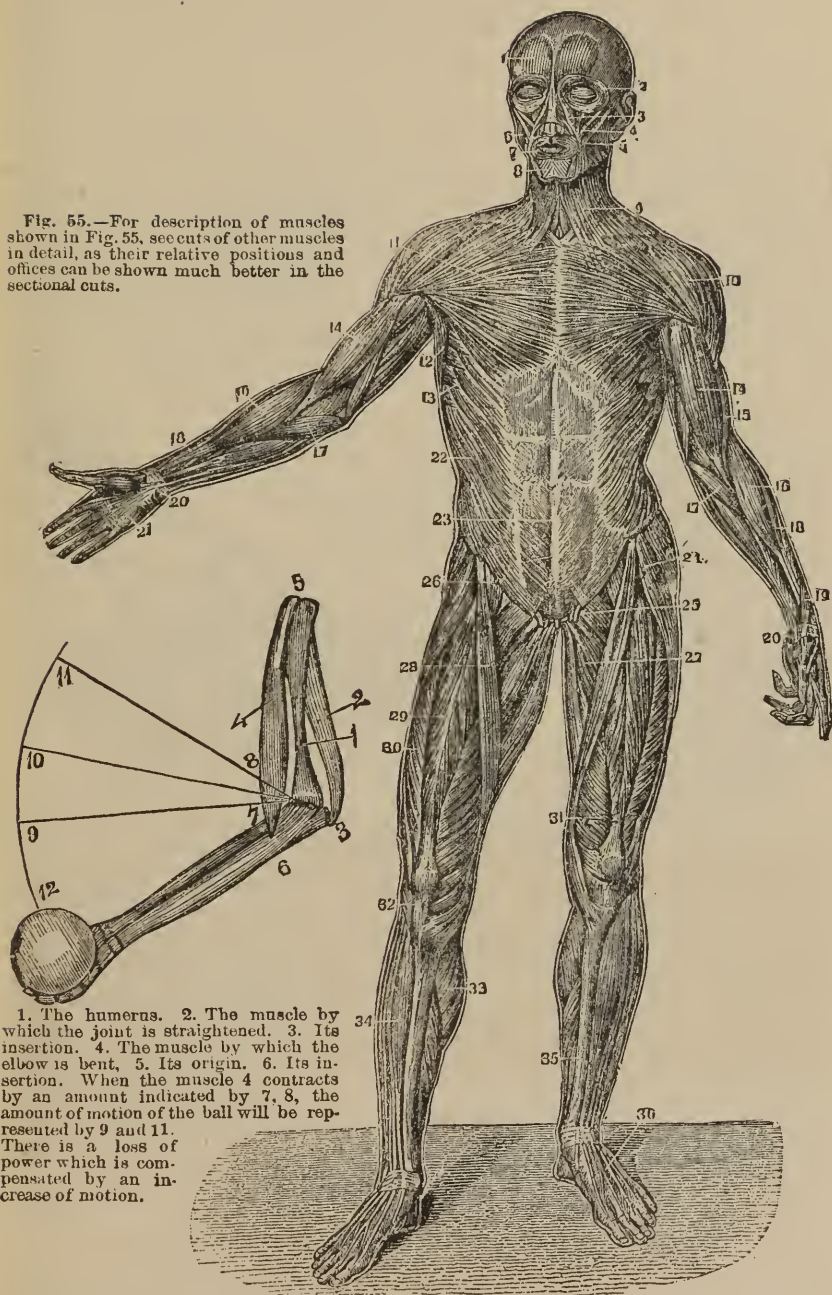


Fig. 53.

“The complication, variety, and swiftness of motion executed by muscles are past conception. Every movement which a human being makes, from the heavier motions of the farmer

Fig. 55.—For description of muscles shown in Fig. 55, see cuts of other muscles in detail, as their relative positions and offices can be shown much better in the sectional cuts.



1. The humerus. 2. The muscle by which the joint is straightened. 3. Its insertion. 4. The muscle by which the elbow is bent. 5. Its origin. 6. Its insertion. When the muscle 4 contracts by an amount indicated by 7, 8, the amount of motion of the ball will be represented by 9 and 11. There is a loss of power which is compensated by an increase of motion.

cultivating the fields, up to the magic touches of the painter's brush, and the methodical frenzy with which the great master's fingers sweep the piano, are all made by muscles obeying an intelligent will."

Further description of the muscles. Before proceeding with the study of the nervous system have thought it best to add the accompanying cuts of individual muscles. See Fig. 56 for the muscles of the forehead. Figures 57 and 58 give excellent ideas of the working of the muscles of the eye. There are two sets, the *straight* and the *oblique* muscles.



Fig. 56.

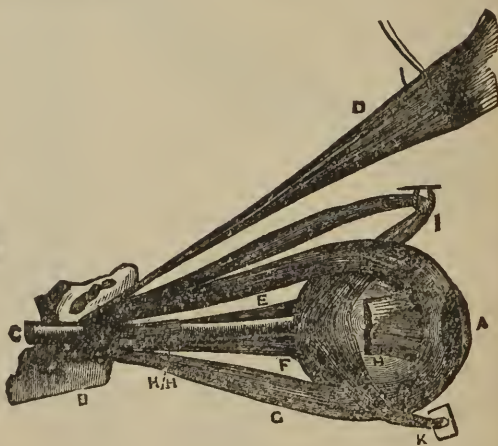


Fig. 57.

Fig. 56. Muscles of the face. *a.* The levator labii superioris. *b.* The levator angulioris. *d.* The depressor labii inferioris. *e.* The zygomaticus major. *g.* The buccinator. *h.* The orbicularis oris. *i.* The levator alae nasi. *j.* The compressor naris. *k, l.* The occipito frontalis. *m.* The orbicularis oculi. *q.* The masseter muscle.

Fig. 57. The human eye has six muscles attached to it. Four of these are called the straight muscles, because they are so situated as to run straight backwards from the globe to the back part of the orbit, where they are attached to the bone. The other two are called the oblique muscles, because they run obliquely, as it were to the eye. The straight muscles are attached above below, to the inner and to the outer side of the eyeball. The upper oblique muscle is attached to the outer and back part of the eyeball, and the lower oblique to the outer and lower part of the globe. These muscles and their attachments are readily seen in the accompanying figure. We have the right eyeball with the cornea *a* in front, and the optic nerve running from *c*, where it is cut off. *e, f, and g,* are respectively the upper, inner and lower straight muscles. *H, h,* is two outer straight muscles, cut off at *h*, to exhibit the inner one. *I* is the superior oblique, where it runs through a sort of pulley on the inner and upper part of the orbit. *K* is the attachment of the lower oblique muscle at the inner and lower corner of the orbital edge. *B* is the bony apex of the orbit, where all but the lower oblique is attached, since the upper oblique, as is seen, runs through the pulley backwards, to the bone near the others. All this will be more apparent by reference to Fig. 58.

Fig. 58. We have of the natural size, a horizontal section just above the eyeballs, which we see with the optic nerves going from them to pass inside the skull, where they join and intermingle. The space between *d d* is the cavity of the nose; *a a* are the lines of the optic axes; *n n* are the two outer straight muscles; *i i* the two inner straight muscles; *o o* are the two upper oblique muscles. The two lower oblique muscles of course cannot be seen from this point of view, which is from above,

we see, however, where they are attached to the globes at *m* and *m*. In the left eye, *s* is the upper straight muscle, which, in the right eye, has been removed to show the optic nerve. *c c*, where the two dotted lines cross, are the centers of motion of the globe. The dotted lines *b b* are the axes

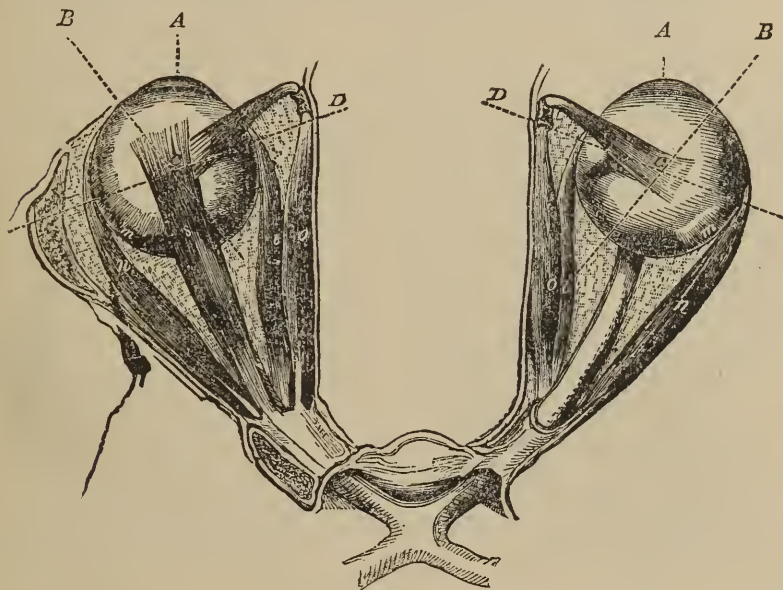


Fig. 58.

around which the oblique muscles move the globe. The dotted lines *d d* are the axes around which the upper and lower straight muscles move the globe. The axis of motion of the outer and inner straight muscles is a vertical line through the point *c*. In the right eye, the outer portion, or wall of the orbit; is removed.

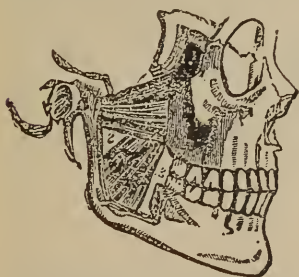


Fig. 59.—Shows the muscles that move the lower jaw. The two pterygoid muscles, parts of the upper and lower jaws are removed to exhibit them. 1, 2. The external, and 3, the internal pterygoid muscles.

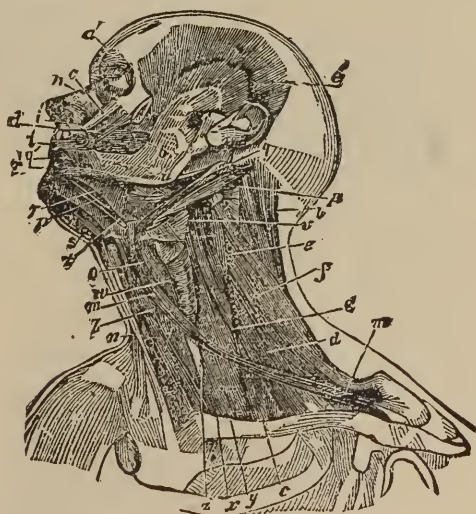


Fig. 60.—Muscles of the neck. *l*. The sterno-hyoides. *m m*. Omo-hyoides, mylo-hyoides. *g*. Stylo-hyoides. *p, p*. The digastricus. *d, e*. The longissimus dorsi. *a, b*. The sacro-lumbalis. *c, o*. The levatores costorum.

Fig. 61.—Shows the muscles that move the spine.

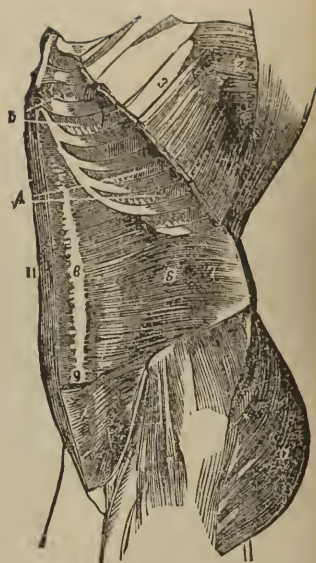


Fig. 62.—Muscles of respiration. 4. External intercostal muscles. 5. Internal intercostal muscles. 6. The transversalis muscle. 8. The linea alba. 11. The rectus abdominus.

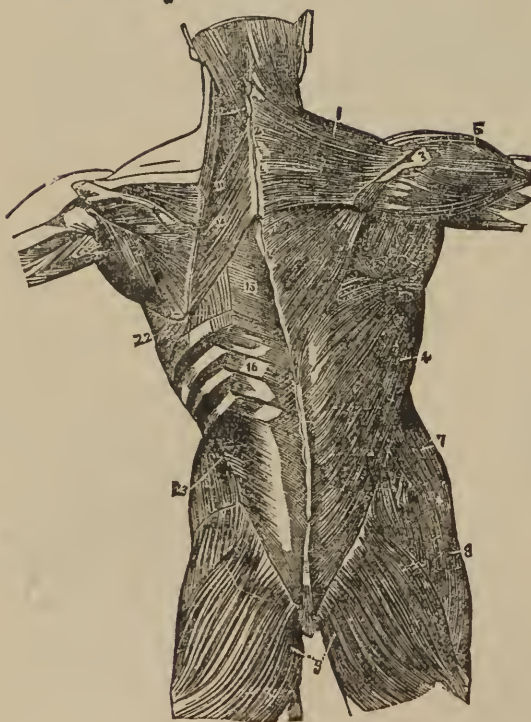


Fig. 63.—1. The trapezius. 2. The latissimus dorsi. 3. The deltoid muscle. 4. The glutens medius. 5. The glutens maximus. 6. The rhomboidens muscle. 7. The seratus posticus inferior. 8. The serratus anticus major.

Figures 62 and 63 give a good illustration of the muscles of respiration.

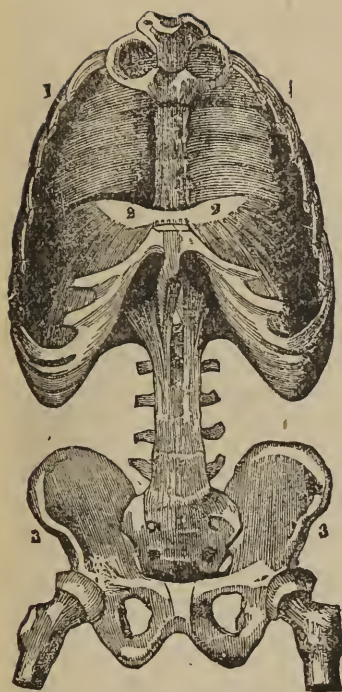


Fig. 64.—The thorax, the front part removed to show the diaphragm 2, 2.

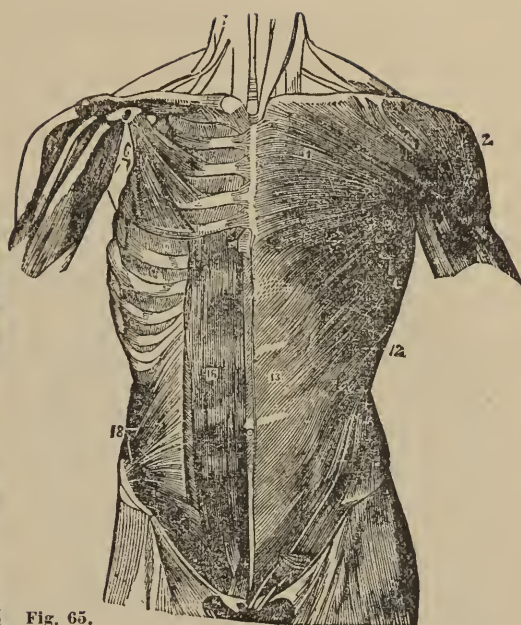


Fig. 65.

Fig. 65. Muscles of the abdomen. Front view of the muscles of the trunk. 1. The pectoralis major. 2. The deltoid muscle. 12, 13. The external oblique muscles. 16. The rectus abdominus. 18. The internal oblique muscle.

Fig. 66. The muscles of the lower extremities. *a*. The psoas magnus muscle. *b*. The iliacus internus. *c*. One of the intercostal muscles. *d*. Part of the femur. *e*, *e*. The bones of the pelvis.

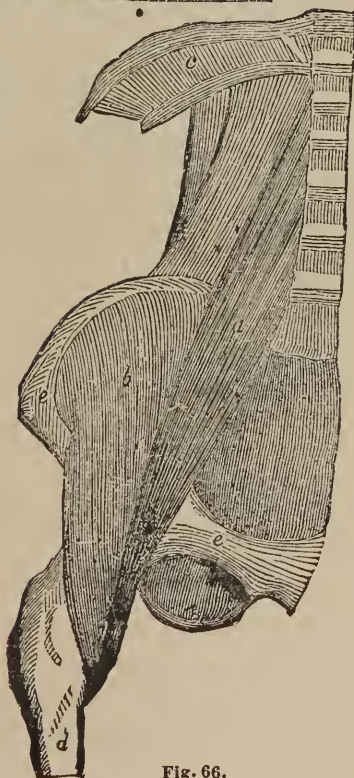


Fig. 66.

With these illustrations, we will close the very interesting study upon the muscles, believing that many will feel sufficient interest in the subject to give it examination.

The *nervous system*, includes the brain, spinal cord, nerves, and the external senses.

A general outline of the nervous system is here presented. It consists of three great divisions—the brain, the spinal cord, and the nerves.

Of these the brain is the instrument by which we feel and think, and put into action the dictates of our will. The spinal cord stands, as it were, between the brain and the rest of the body; through it most of the actions we perform unconsciously are done, and besides this, it receives impressions and transmits them to the brain on the one hand, and on the other, in its influence on the body, the brain acts through it. The nerves connect these central parts, the brain and cord, with all the other organs.

We will first speak of the brain, which fills nearly all of the cranium. It is divided into three lobes. The largest portion is called *cerebrum*, the remaining *cerebellum*. The *medulla oblongata*, though not a part of the brain, but the spinal cord, of which it is simply a prolongation, is situated within the cranium. These are covered by three enveloping membranes, called the *dura mater*, the *arachnoid* and the *pia mater*. The *dura mater* is closely attached to the interior surface of the cranium and may be regarded as an internal periosteum. The *arachnoid* membrane is an exceedingly thin film and is attached to the interior surface of the *dura mater*. It secretes a fluid in small quantities, but sufficient to keep the surface moist, and diminish the friction

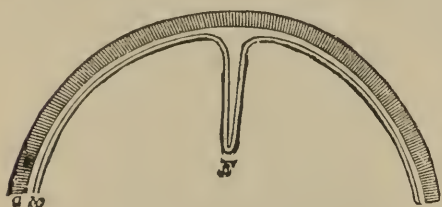


Fig. 67.—A vertical transverse section of the cranium. a. The skull. b. The dura mater. c. The arachnoid membrane. f. The falx cerebri.

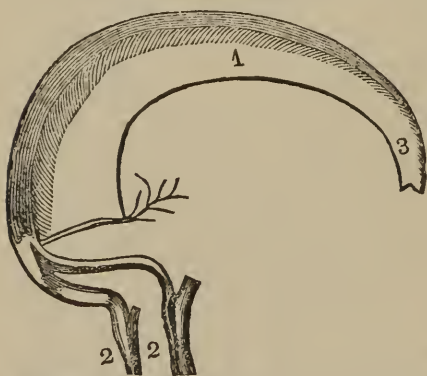


Fig. 63.—The falx cerebri. 2, 2. Two large veins by which the blood is returned from the head. 3. The forehead.



Fig. 69.

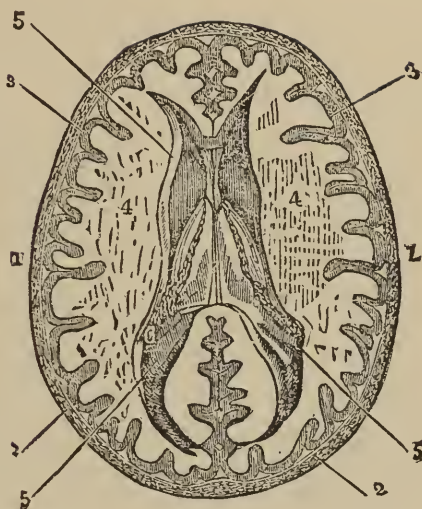


Fig. 70.

occasioned by a slight motion of the brain within the cranium. There is a constant secretion of this fluid and as constant an absorption of it. This mem-

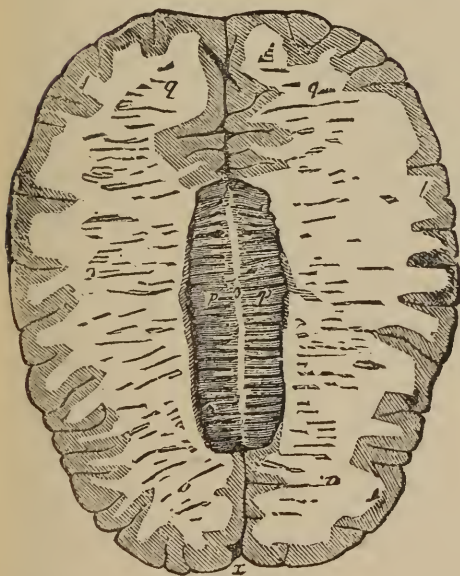


Fig. 71.



Fig. 72.

Fig. 69. 1, 1. The integuments of the brain turned down. 2, 2. The edge of the remaining part of the cranium, the upper part having been removed. 3. The dura mater. 4. The convolutions and anfractuosities of the brain.

Fig. 70. A horizontal section of the cranium and cerebrum. 1, 1. The cranium. 2, 2. The dura mater. 3, 3. The cellular substance of the cerebrum. 4, 4. The tubular substance. 5, 5. The lateral ventricles of the brain.

Fig. 71. A horizontal section of the brain at a higher level than of the preceding section. *a, b, c.* The white substance of the gray portion *d, d.* The corpus callosum.

Fig. 72. A cross section of the spinal cord. The dark portions represent the cineritious portion. The cineritious portion is found in the central part of the medulla oblongata also.

brane in certain conditions of the system, and particularly in childhood, is apt to take on inflammation, when the secretion becomes too abundant, and results in dropsy of the head (hydrocephalus).

The *pia mater* is a thin but firm membrane not attached to the *arachnoid* or the *dura mater*. It lies next to the brain, dipping into its surface at the fissures, and forming the only proper envelope of the brain.

The spinal cord is the continuation of the medulla oblongata from the magnum foramen to the sacrum. It is divided by deep fissures in front and behind into right and left halves, and by slight depressions on the sides, into anterior and posterior portions. The central portion is composed of gray substances.



Fig. 73. The medulla oblongata.

The Nerves. The nerves are small white cords which pass out in pairs from the brain and spinal cord, and spread themselves through every part of the body. Like the spinal cord they are composed of gray and white matter, and are inclosed in sheaths, which are formed by extension of the three membranes which inclose the brain.

They come out in pairs and are distributed over the whole body. Forty pairs they count in all. "Of those, nine pairs arise from the base of the brain within the skull; a tenth from the brain, as it passes through the great hole of the skull into the spine, and the remaining thirty from the spinal marrow. Those rising from the brain pass through holes in the base of the skull, and are distributed chiefly to the organs situated in the head, and to those contained in the chest and belly; while the nerves which arise from the spinal marrow go, partly among the internal organs of the trunk, to be distributed principally to the exterior parts of the body, and to the extremities or limbs. All the nerves arise, first by medullary (or marrow-like) fibres, which afterwards meet, and form soft, white, pulpy

cords. These cords run out in pairs from their origin; but soon afterwards separate, and spread themselves over the whole body, by splitting into innumerable branches."

Functions of the Nerves. First, the nerves of special sensibility. These are the olfactory nerve, which conveys only the impression of odors; the optic, which conveys only impressions of light; the lingual branch of the fifth pair, which conveys only impressions of taste; and the auditory, which conveys no other impression than those of sound. Under peculiar circumstances these nerves may be affected by other means than those which ordinarily excite them. Thus, there may be a sensation of light occasioned by a galvanic shock. For a similar reason a person who has fallen on his head will describe the sensation by saying that he "saw stars."

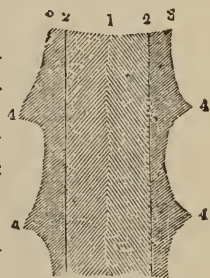


Fig. 74.—1. The spinal cord. 2. 2. The pia mater. 3. 3. The ligament, by which the spinal cord is retained in its place. 4. 4. Points by which the ligaments are attached to the walls of the spinal canal.

Second, the nerves of *general sensibility*. The fifth pair, with the exception of the lingual branch is the nerve of general sensibility to the organs of the senses. It can not convey the impression of odors, light taste or sound. Its action is, however, necessary in producing these impressions, for when it is severed or injured, the nerves of special sensibility lose the power of conveying their appropriate impressions. The posterior roots of the spinal nerves are the nerves of general sensibility of the body. These nerves convey the general sensations of pressure, temperature, form, weight, etc. The mind always refers the sensations produced by these nerves to the extremity of the nerves. Thus, a person whose limb has been amputated will, when the remaining part of the nerve is affected, refer the sensation of pleasure or pain to the part in which those nerves terminated while the limb existed. These nerves also act the part of sentinels. We have seen that they are most abundantly supplied at the surface of the body, and it is from without that danger is mostly to come. The pain which they cause when the surface is injured is both the warning

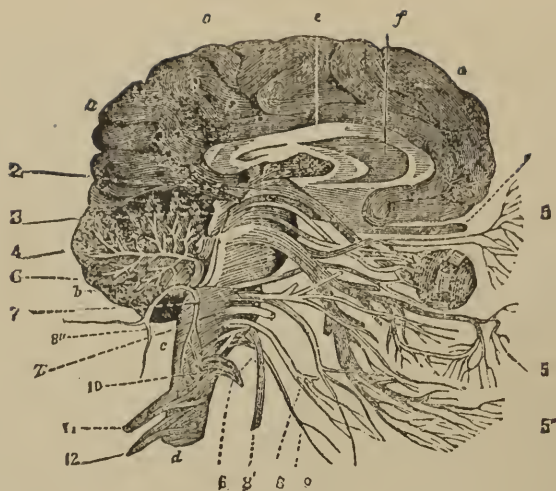


Fig. 75.

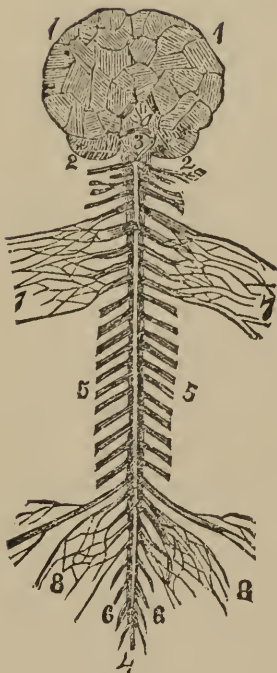


Fig. 76.

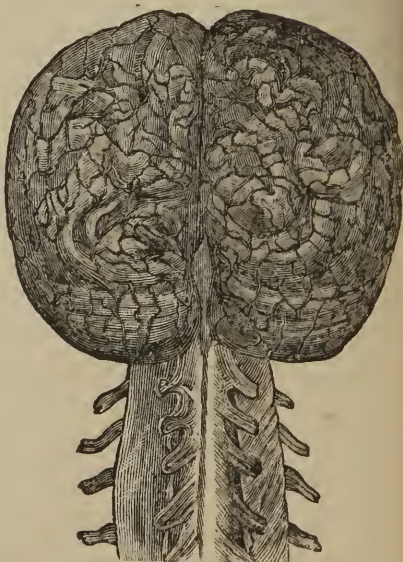


Fig. 77.

Fig. 75. A longitudinal and vertical section of the brain, and a side-view of the medulla oblongata. *a, a, a.* The cerebrum. *b.* The cerebellum. *c, d.* The spinal cord; the medulla oblongata in its extension upward. *e.* The corpus callosum. 1. The olfactory nerve. 2. The optic nerve. 3. The motor oculi. 4. The trochlearis. 5, 5, 5. The trigemini. 6. The abductor oculi. 7. The auditory nerve. 7. The facial nerve. 8. The glossopharyngeal nerve. 8. The par vagum. 8. "The spinal accessory nerve. 9. The hypoglossal nerve. 10, 11, 12. Spinal nerves.

Fig. 76. 1, 1. The cerebrum. 2, 2. The cerebellum. 3. The medulla oblongata. 4, 4. The spinal cord. 5. The dorsal nerve. 6. The sacral nerve. 6. The axillary plexus. 8. The lumbar plexus.

Fig. 77. Represents the brain, showing a section of the spinal cord attached. The brain, spinal cord, and the nerves constitute the nervous system.

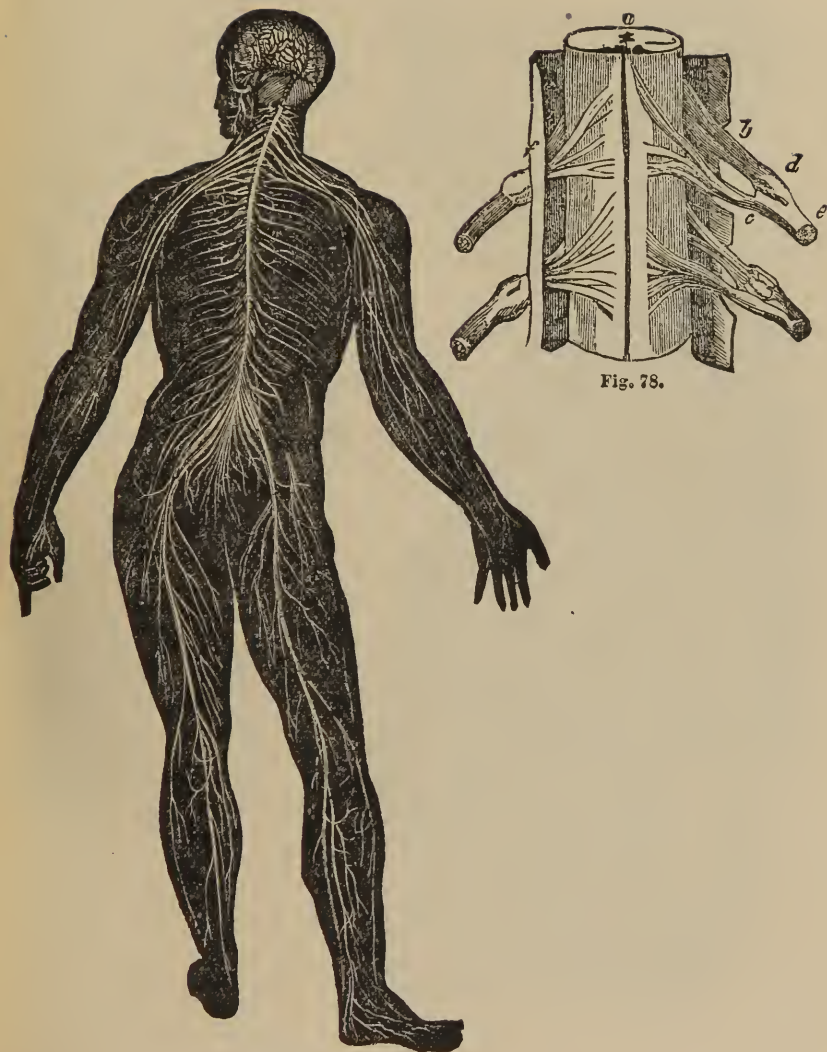


Fig. 79.

Fig. 78 *a*, The spinal cord. *b*, *c*, The two roots of which each spinal nerve is formed. *d*, The ganglion formed on each posterior root. *e*, The nerve after the junction of the two roots.

Fig. 79 represents the general distribution of the nerves of the system.

of our danger and the motive to attend to it. These sentiments are in every part of the surface of the body, so that the



Fig. 80.—Shows a plexus or net work of veins.

Fig. 81.—Illustrates the system of the great sympathetic nerve. *a, a*, The semi-lunar ganglion and solar plexus, situated behind the stomach. *d, d*, Thoracic ganglia. *p, c, e*, External and internal filaments. *g, h*, The coronary plexuses, situated on the heart. *i*, The lower cervical ganglion. *n*, The middle cervical ganglion. *q*, The upper cervical ganglion. 1, The renal plexus, situated on the kidneys. 2, 2, Lumbar ganglia. 3, 4, Nervous filament from them. 5, 5, The aortic plexus.

point of a needle cannot be put down where they will not be found, and their warning is instantaneous, and generally proportioned to the danger.

The nerves of voluntary motion. Four pairs of the cranial nerves are connected with the voluntary motions. The ex-

citement to all voluntary motion, flows from the brain or spinal marrow, through the medium of the nerves, to those parts of the body which we wish to move.

That the immediate cause of all voluntary motion depends upon the brain and spinal marrow, is seen by the loss of this motion taking place on the injury of these organs.

If, for instance, the brain be compressed either from a rush of blood, or water, or from other mechanical causes, the whole body will become paralyzed, and the power of motion suspended; but, on removing the compressing cause, this paralysis will cease, and the whole frame will recover its power of sense and motion.

Compression of the spinal marrow will also cause loss of motion and sense, but only in those parts which receive their nerves from it, as the external flesh of the trunk of the body, and muscles of the limbs.

And if a nerve which conveys the immediate cause of motion from the brain, or spinal marrow, to the parts to be moved, be either cut or tied, or otherwise compressed, the part to which this nerve is distributed, will immediately become insensible, and lose its power of motion. Thus injuries of particular nerves produce palsies of the parts to which those nerves are sent; as loss of voice, hearing, and speech; but on removing the cause, the disabled parts will recover their functions."

The nerves of involuntary motion.

The nerves which control the involuntary motions of the system and the facial portion of the seventh pair, the eighth pair and the great sympathetic nerve.

The facial nerve is the one upon which depends the expression of emotions in the face, such as joy, grief, fear, anger, revenge, etc.

These motions of expression may, by practice, be brought to some extent under the control of the will, so that when the motions exist they shall not be depicted in the face, or so that there may be an expression of them in the face when the emotions do not exist. But this control is generally very im-

perfect. It is much easier to control the emotions than to control the natural expression of them when they arise. Hence it is that actors strive to awaken the emotions in their own minds which they wish to represent, and allow the natural expression of them in the countenance, rather than attempt to give the expression of them when they do not exist. It has, however, been said that some actors have obtained so complete control over this nerve, that they could not only give the expression of any emotion at pleasure, but that, to some extent, they could represent one class of emotions by one side of the face, and another class, at the same time, by the opposite side.

The aborigines of this country have great power, not in giving the expression of emotions which do not exist, but in suppressing the expression of emotions which they do feel. Hence the comparison, "impassible as an Indian." They are said to have cultivated this power from the desire to prevent Europeans from thus learning their wishes and taking advantage of them.

The unwillingness which many persons feel to exhibit their emotions is not natural, and can scarcely be justified. This susceptibility was given us for wise purposes. Why should we be unwilling to show proper emotions? and why should we not allow upon ourselves this check against improper emotions? This involuntary manifestation of emotions is one of the most pleasing elements of social life, while it is also a safeguard against injury, because it is the natural warning which excited passion always gives. We are most charmed by those whose emotions are strongly painted in the face, but we are always suspicious of the person who can keep his emotions to himself.

THE ORGANS OF SENSES.

SEC. I. *The sense of sight.* The organs of sight are the optic nerve, the globe of the eye, the muscles of the eye, and the organs of protection. The structure may be considered in reference to its external and internal parts.

First, the external parts. The orbit of the eye is a deep cavity under the anterior lobe of the brain. The ball of the eye is lodged in the orbit, but does not entirely fill it. The space between the ball and the orbit is filled with muscles and adipose substance. The muscles and their action have been already described under the chapter on muscles.

The adipose substance serves to fill up the irregularities of the orbit and as a cushion for the ball.

The front part of the eye, so much as can be seen by lifting the lid, is covered by a very delicate membrane, the *conjunctiva*, which possesses extreme sensibility to the presence of minute foreign particles upon the surface, and is therefore an important protection to the eye in maintaining its transparency. The eye is further protected by the lids, at the edges of which, as a curtain, are attached cartilages, which keep the lids in form, serve for the attachment of muscles to open and close them. The lachrymal gland, about the size of an almond, lies in the upper outer part of the orbit, and furnishes a fluid secretion which is spread over the eye every few seconds by the motions of the lids.

Second, The internal parts of the eye. The ball of the eye is nearly a perfect sphere with the exception of the protuberant part (2, Fig. 82) in front, which is a small segment of a smaller sphere than the body of the ball. The ball is supported in its form by several membranous layers.

The retina is formed by the optic nerve, which, after it passes into the eye, is spread out into a thin, delicate network, lining the whole interior of the eye, and is the seat of vision. How the focus of light on the retina produces sensation we can form no idea whatever; we must receive it as an ultimate fact.

It is a primary law of vision that any point of a visible object is seen in the direction of a straight line from its focus (4, Fig. 84) on the retina through the center (5) of the pupil. All the points of a visible object, from which light can reach the eye will be represented by corresponding points in the eye; and these points on the retina, which taken together,

constitute a perfect image of the object, will, when seen together, convey to the mind a distinct idea of the object. It is the object of this sense to convey directly onl



Fig. 82.

Fig. 82. Section of the eye. 1, the sclerotic coat. 2, the cornea. 3, the choroid coat. 6, 6, the iris. 7, the pupil. 8, the retina. 9, the ciliary processes from the choroid coat, by which the crystalline lens is supported. 10, the anterior chamber. 11, the posterior chamber. 12, the crystalline lens. 13, the vitreous humor. 15, the optic nerve. 16, the artery of the interior of the eye.

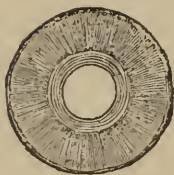


Fig. 83.

Fig. 83 gives a view of the iris, showing the muscular fibres around the pupil, and the radiating fibres reaching to the circumference.

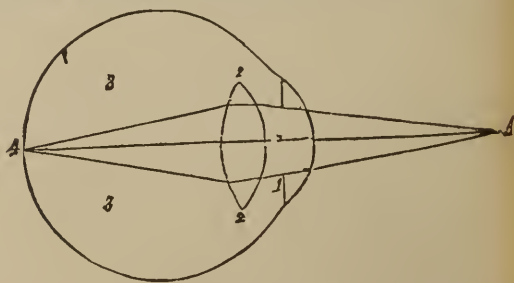


Fig. 84.

Fig. 84. A, any point of available object from which rays come into the eye through the pupil 1, 1, are conveyed principally by the lens 2, 2, and brought to a focus at 4. 3, 3, the vitreous humor.

ideas of the color of objects, and their direction from us, and of solidity; but indirectly it becomes the most important of the senses by giving us the ideas of form, magnitude, distance, and motion.

It is obvious that the highest points of an object (A, Fig. 85) will be represented on the retina by the lowest points *b*, and the lowest points of the object by the highest points on the retina—that is the pencils of light will cross at the pupil, and the image will be inverted.

But the mind does not see the image any more than it does the object. Each point in the retina upon which the image is placed conveys to the mind an idea of its true pos-

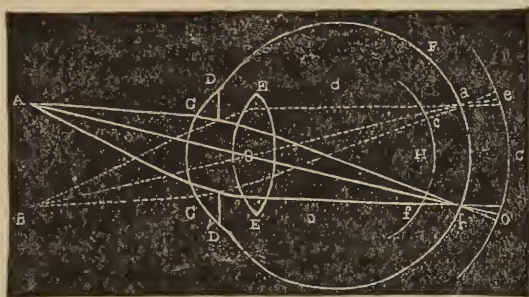


Fig. 85.

Fig. 85. *A*, and *b*, two points of a visible object. The pencil of rays from each point is brought to a separate and perfect focus on the retina, and each point is seen in the direction from *a* or *b* through the center of the pupil.

ition as referred to the object. The point *b* is recognized to be at *a*, in accordance with the general law above given; the point *a* at *b*, and so of every other point, that is objects are seen erect, and not inverted.

Each point in one retina has a corresponding point in the other, and these two points sustain by our nature such a relation to each other, that when they are both acted on exact-

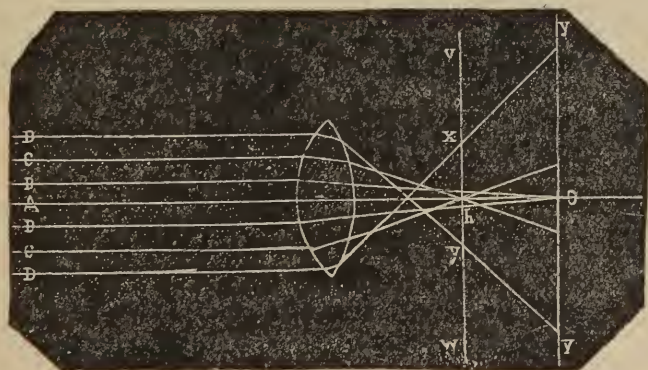


Fig. 86.

The ray *A, O*, passing through the center of the lens is not refracted at all. The rays *B, B*, are refracted somewhat, and come together at *o*. *C, C*, meet at *h* and *D, D*, are the most refracted, and come to a focus at *n*.

ly alike, that is, by the same object, they convey to the mind the impression of but one object; but if, by a slight pressure of one eye from its natural position, we cause the same ob-

ject to be represented on parts of the retina which are not corresponding parts, we see two objects, though there is but one; we, therefore, see objects single though seen by both eyes, because they affect corresponding parts in both retinas.

As the refraction of a ray of light depends in part on the degree of obliquity which it falls on the refracting substance, it will be seen that the outermost rays (D, D , Fig. 86) which come from a visible object, as they fall upon the lens more obliquely, will be most refracted.

If rays of light come from two points (a and b Fig. 87) it is obvious that those which come from the greater distance, b , will have less divergence, and will therefore, come to a focus, (at d') nearer the lens than those which have greater divergence.



Fig. 87.

The rays from b which fall upon the lens A, A , are necessarily less divergent than those from the nearer point a .

As they diverge less, they will require less bending to bring them to a focus, or by the same bending they will come to a focus b' nearer to the lens than a , the focus of rays from a .

There are persons in whose eyes the retina is naturally so far from the lens that only those objects can be distinctly seen, that are very near; there are others in which the retina is naturally so near the lens that only very distant objects are distinctly seen. In the first case that of *short-sightedness*, it is necessary to increase the divergence of the rays; hence concave glasses (Fig. 88) must be used.

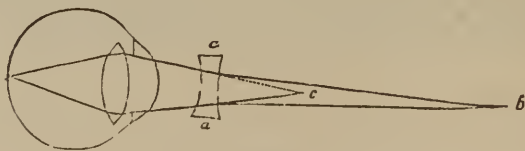


Fig. 88.

A cone of rays rendered more divergent by a concave lens a , to remedy short-sightedness. The rays from a distant object b enter the eye with the same degree of divergence by the aid of the lens that they would if without the lens, they came from c . If the eye is adapted to see distinctly at c without the lens, it must also be adapted to distinctly see an object at b with the use of the lens.

In case of *long-sightedness* it is necessary to diminish the divergence when near objects are looked at, and therefore convex glasses (See Fig. 89) are required.

There is sometimes an imperfection in some of the appendages of the eye, by which they can not move in such a way that the corresponding parts of the two retinas shall be affected by the same object. Sometimes one eye is weaker than the other, and we insensibly turn it towards the inner angle to reduce the amount of light received. The first of

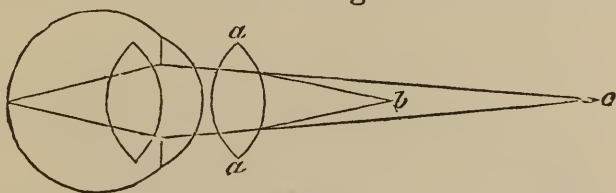


Fig. 89.

A cone of rays rendered less divergent by a convex lens, *a, a*, to remedy long-sightedness. The rays from a nearer object, *b*, enter the eye with the same divergence, by the aid of the lens, *a, a*, that they would if, without the lens they came from *c*. The eye can see distinctly the more distant object *c*, without the lens. It must then be able to see distinctly the nearer object, *b*, by the use of the lens because the rays enter the eye as if they came from *c*.

these is *squinting*, and the last is *cross-eye*. In both cases there is double vision; the two eyes convey different impressions of the object. The mind, however, soon accustoms itself to attend to but one of the impressions. By shading the eye and directing attention to its motions, cross-eye may easily be cured. And squinting can be cured only by a surgical operation, and this is not always successful,

The sight is improved by practice, like every other organ, but it requires care. There is no other organ more likely to be overtasked. This may be by using it too continuously without rest, or with too strong or too weak a light. Reading at twilight is a very common way of inflicting injury upon the eye. The evil first appears as a slight inflammation. If the cause of injury is removed and rest is allowed, it may generally be cured by frequent bathing of the eye in pure water, as cold as it will bear without pain. Any other eye-waters are generally injurious, and should never be used, unless prescribed by a judicious physician. The eye is also apt to sympathize with a disordered condition of the general health. When this is the case the health and not the eyes require attention.

SEC. II. *The sense of hearing.* The organ of hearing consists of the external ear, the ear tube, the tympanum, and the labyrinth: *The external ear* (See Fig. 90) is a cartilaginous substance, situated around the orifice of the ear-tube. It is probably useful to some extent in collecting the vibrations of the air and directing them toward the internal ear. Yet in cases where the external ear has been destroyed or wanting, the delicacy of hearing seems not to be sensibly diminished. In the lower animals the form is more distinctly

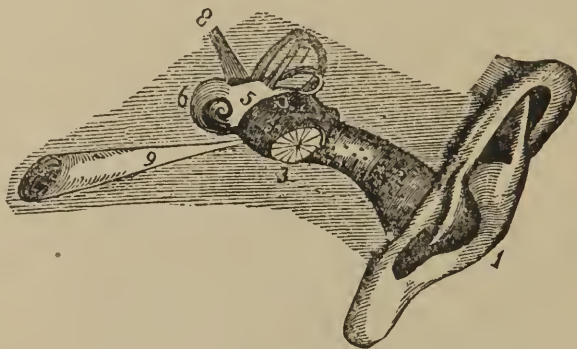


Fig. 90.

Fig. 90. The ear. 1. The external ear. 2. The ear tube. 3. The membrana tympani. 4. The tympanum. 5. The vestibule. 6. The cochlea. 7. The semicircular canals. 8. The auditory nerve. 9. The eustachian tube.

funnel-shaped, and is movable at pleasure, so that it may be directed toward the object from which sounds come. There are muscles suitably situated for giving these motions to the human ear, but, either from neglect or otherwise, these muscles are not under the control of the will.

The ear-tube (2) is a cylindrical cavity extending about an inch inward from the external ear.

The tympanum (4) is a continuation of the ear-tube for about a third of an inch, and is separated from it by a thin membranous partition (3), the *membrana tympani*. The cavity of the tympanum has, therefore, no communication with the external air through the ear-tube, but there is a long, funnel-shaped tube (9) proceeding from the upper and back part of the throat and opening into the tympanum. This is the *eustachian tube*, and serves to keep the air of the same tension on both sides of the *membrana tympani*. The

tympanum communicates with the labyrinth by two small openings in the bone, of which the upper one is called the *fenestra ovalis* and the lower one is the *fenestra rotunda*. These windows are closed by an extension over them of the common lining membrane of the ear. Within the tympanum are four small bones (Seen separately in Fig. 91). The first, the malleus, is placed against the inner surface of the mem-

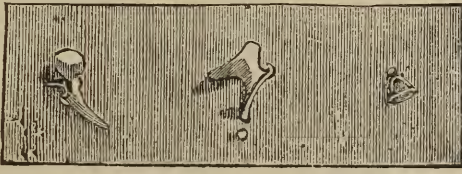


Fig. 91.

Fig. 91. The bones of the ear. 1. The malleus. 2. The incus, below the incus is the small orbicular bone. 3- The stapes.

brana tympani, and the other two (the *incus* and *os orbiculare*) continue the connection to the last (the stapes) which is placed against the membrane of the fenestra ovalis. They are so arranged as to form a compound lever, and so connected with muscles (of which muscle *f*, Fig. 92 is the most important), that the two extremities of the lever are exactly fitted at all times to the respective membranes.

The labyrinth consists of the vestibule, the cochlea, and the semi-circular canals. The *vestibule*, (5 Fig. 90.) is a cavity about equal in size to a grain of wheat, and situated immediately beyond the fenestra ovalis. The anterior part of the labyrinth is the cochlea, (6). It is of a pyramidal form, and resembles a snail shell.

Its spiral hollow makes two and a half revolutions, and is separated throughout its whole extent, except at its apex by a lamina of bone. One division of the spiral terminates at the fenestra rotunda, and the other opens into the vestibule.

The *auditory nerve* (8, Fig. 90.) which is a portion of the seventh cranial pair, is distributed over the interior of the membranous labyrinth, and over both surfaces of the lamina by which the cochlea is divided. The cavities of both labyrinths are filled with a limpid, transparent liquid, secreted

from the surface of the lining membrane, and called the *liquor cotunnii*. Thus both sides of the substance over which the nerve is spread are bathed in this liquid.

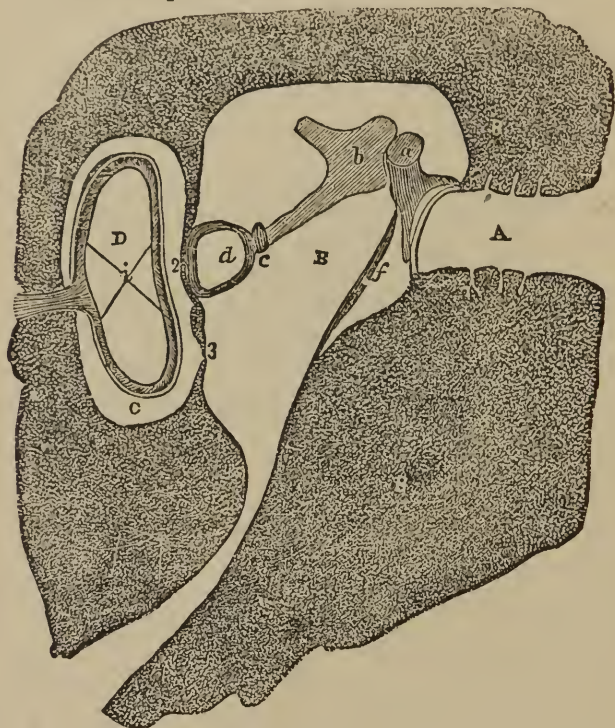


Fig. 92.

An ideal representation of the principal parts of the Ear *A*. The ear tube separated by a membrane from *B*, the tympanum, *a, b, c, d*. The small bones of the tympanum *a*, rests against the membrane tympani, and its position may be slightly changed by the muscle *f*, *d* rests against the membrane 2 of the fenestra ovalis. 3 is the fenestra rotunda. *C* may be taken to represent generally the labyrinth, and *D*, the membranaceous labyrinth, both filled with the liquor of Cotunnii.

The vibrations of the air enter the air tube, and reach the membrana tympani. The motions which it receives are transmitted, by the system of bones within the tympanum, to the membrane of the fenestra ovalis. The same motions are also transmitted by the air within the tympanum to the membrane of the fenestra rotunda. Thus the two membranes which connect with the labyrinth are acted upon by the vibrations of the air, and communicate those vibrations to the liquid of the labyrinth, in which the nerves of hearing terminate. Thus far we can trace the physical causes upon which hearing depends. We know that these

nerves must be compressed by each vibration, that they extend to the brain, and that the immediate consequence is hearing. But why this compression of the nerve should be followed by sensation, and this sensation be hearing is entirely unknown.

SEC. III. *The sense of smelling.*

This sense has its seat in the surface of the outer part of the air passages to the lungs; and it seems to depend for its acuteness upon the amount of surface over which the nerve is spread. In order to increase this surface, in the first place, there are three thin sheets of bone (the turbinated bones)

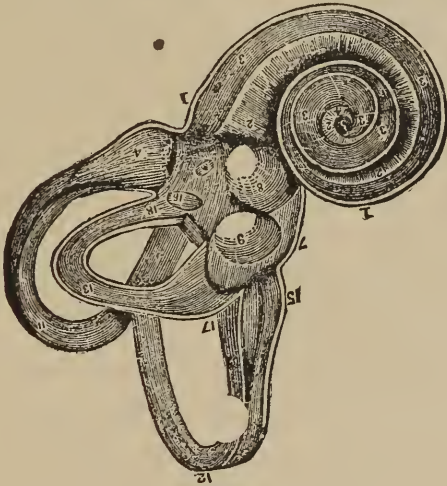


Fig. 93.

Fig. 93. Shows the labyrinth distinct from the bone in which it is situated, and highly magnified. 1. The cochlea. 3, 3, The spiral tubes of the cochlea. 2, 2, The lamina of bone by which they are separated. 7. The vestibule. 8. The fenestra rotunda. 9. The fenestra ovalis. 11, 12, 13. The semi-circular canals.

which lie partly rolled up within each nasal cavity (1, 2, 3, Fig. 94.) In the second place, there are several cavities in the bones of the head and face, not otherwise employed, which are made to communicate with the nasal surfaces.

Over all these surfaces is spread the *Schneiderian membrane*, the object of which is to deposit a mucous secretion, by which, in a healthy state, they are continually moistened.

The *olfactory nerve* enters the nasal cavities through the sieve-like apertures in the ethmoid bone, and branches are

distributed by division and subdivision over every part of this membrane.

This sense may be useful, to some extent, in assisting us to discriminate between useful and hurtful food. Possibly it is useful in removing from the air some elements which, if



Fig. 94.

Fig. 94. A verticle section of the bones of the face a little forward of the ears. 1, 1, lower spongy bones. 2, 2, The middle spony bones. 3, Superior spongy bones. 4, antrum maxillare.

taken into the lungs, might be hurtful. It is unquestionably serviceable as a warning against noxious vapors. And yet it seems to be the sense least essential to our existence, and having, more than any other sense, for its special object simply to increase the enjoyment of life.

The Schneiderian membrane is so situated as to be, perhaps, the most exposed of any part of the system to variations of temperature; and these changes often produce the inflammation and secretion which we speak of as a cold in the head. But this membrane is also always liable to indirect disease, by taking on the extra labor of the system when the excretions have been checked in other parts. Hence, a cold is likely to show itself in the nasal cavities first, and the excessive secretion indicates not so much a disease of that membrane as of suppressed action elsewhere, generally of the external surface.

SEC. IV. *The sense of Tasting.*

This sense has its seat in the tongue, and to some extent, in all parts of the mouth. The tongue is covered with fine filaments papilla, which give it a velvety appearance. On the edges of the tongue there are also papilla, of larger size, conical form, and brighter color. These papilla, of both kinds, but particularly the larger ones, contain the terminations of the lingual branch of the fifth pair of cranial nerves.

Substances which are capable of solution and of being

tasted are called sapid substances. When the saliva containing such substances in solution flows around these papilla, the impression which they make upon the nerve within is communicated to the brain, and the sensation of tasting is produced.

When substances which produce an agreeable taste are placed in the mouth, there is an increased secretion of the saliva to facilitate the solution of it, and promote the gratification of this sense. The taste is also rendered more acute by pressing the tongue against the roof of the mouth, and thus bringing the particles which produce the impression in closer contact with the nerves upon which the impression is produced.

The taste is a sense of importance to us in enabling us to discriminate between wholesome and hurtful food. It is a general rule that those substances which are agreeable to the taste the stomach will easily digest, and those which are not agreeable if swallowed, the stomach will not act upon and is disposed to reject. A person with a disordered state of the system, or when recovering from a long illness, may desire the most hurtful kinds of food, the taste may also be perverted by the use of tobacco, alcoholic drinks, or food seasoned to excess; but these are exceptions which do not invalidate the rule nor diminish its practical value.

The act of eating is not made compulsory upon us and removed from the control of the will lest we should forget it, as that of breathing is, but it is specially stimulated by the gratification of the sense of taste, which is necessarily connected with it. As we naturally seek to prolong this gratification, it encourages us to take our food not too rapidly, to masticate it sufficiently, and to mingle it thoroughly with the saliva, all of which are essential to continuance of health.

SEC. v. *The Sense of Feeling.*

This sense has its seat in the skin and exists on the whole surface of the body, but is more acute in the hands and at the ends of the fingers.

The skin is composed of two principal layers. The outermost is the *Cuticle*. (, 1 1, *Fig. 95*). It is this layer which is raised by scalds and blisters. It is destitute of nerves or blood-vessels, and is regarded as merely a secretion from the true skin and hardened by exposure.

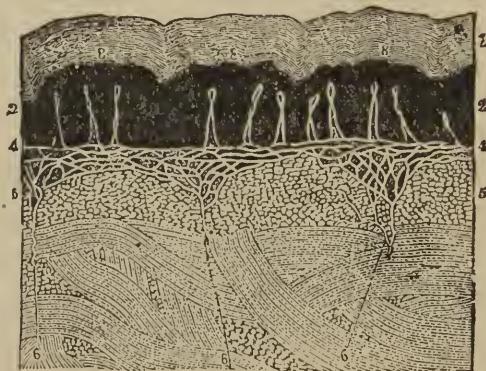


Fig. 95

Fig. 95. 1, 1, The cuticle. 2, 2, The colored layer. 4, 4, The network of nerves on the surface of 5, 5, the true skin. Filaments of nerves go from this network into the papillæ 8, 8, 8. 6, 6, 6, nerves which divide to form the network.

At the under surface of the cuticle is a thin layer (2, 2), consisting, not of a network, as was formerly supposed, and from which supposition it was called the *rete mucosum*, but of unorganized gelatinous matter. It is secreted, as the cuticle is, from the true skin but has not become hardened. It is, in fact, cuticle, in a state of formation. It contains the coloring matter which is so abundant in the African race, and which is never wholly wanting in the healthy European. Its color, always more or less dark, varies with the race, the temperament, and the habits of the individual.

The hair and nails are of the same nature as the cuticle, being secretions simply and containing no nerves or blood-vessels, and possessing no vitality. The hair is formed in a sac or follicle (*Fig. 96*) situated in the substance of the true skin, and passing through the cuticle by a narrow opening.

In the bottom of this sac cells are continually forming; one portion of which, as they advance, become an imbricated covering of the hair. The other portions of the cells go to form the central portion, and among these are found colored oily particles which give color to the hair.

The growth of the hair depends upon the accumulation of new cells at the base which thrust forward the shaft of hair already formed.

The nails are developed in a very similar way. Each

nail may be regarded as a hair increased in size and flattened, or as a succession of hairs placed side by side, and the several sacs in which they are found coalescing into one of sufficient width to receive the root of the nail.

The true skin (5, 5, Fig. 95) is a dense elastic membrane, situated in contact with the muscular parts of the body and defends them from injury. It is covered with a plexus of nerves (4, 4,) and the terminations seem to be coiled up so as to form little mounds (8, 8,) which are called papillæ. On the ends of the fingers they are most abundant, and disposed in rows. They contain the nervous filaments from the posterior roots of the spinal nerves.

Almost all of the physical properties and states of bodies such as form, hardness, locomotion, vibration, temperature, etc., are capable of acting upon the nerves of this sense. The nerves convey these several impressions to the brain, where the sensation is produced.

This sense when specially trained (as it often is by those whose business it is to judge of the fineness of fabrics,) becomes very acute. In blind persons it almost answers the purpose of sight. By this sense they read rapidly with raised letters, and sometimes without the letters being raised.

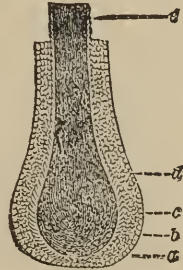


Fig. 96.

Fig. 96. A base of the follicle where the cells are supplied which form the covering and the interior portion of the hair. *b*, Cells to form the exterior part of the hair. *c*, The same cells taking this form and arrangement of imbricated scales. *d*, The interior portion of the hair, the cells becoming elongated and giving the fibrous structure to the hair as it approaches *e*, and protrudes beyond the skin.

But it is of the highest importance to us without this special training. It is more favorably situated at the extremities of the fingers, for extensive use. Scarcely any common employment, such as the use of the needle or pen, could be carried on without it; but it is more indispensable in those processes which require special skill.

It communicates certain kinds of knowledge which we could not receive in any other way. We could not for instance, have the idea of temperature, of the existence of heat and cold, without this sense. It is also less likely to be deceived than most of the other senses, and hence it is employed to verify the evidences of the other senses; thus we judge of distance by sight ordinarily, but not till we have learned by the sense of feeling, at what distance certain differences take place in the appearance. We judge of form by the sight, but we also determine form by the sense of feeling, and then connect the ideas of the various forms with the impressions which they produce on the organs of sight.

The systems of organs which we have hitherto considered are subject to periodical suspension of their functions, constituting *sleep*. After giving attention to some of the processes of the repairing system, we shall be better prepared to understand the necessity for this suspension of activity. But the necessity exists, even if we can assign no reason for it. It is so far subject to the will that, if we chose, we can generally defer it several hours, but beyond a certain period it is impossible to resist the demand for it. The eyes close involuntarily; the voluntary muscles refuse obedience to the will; the external senses cease to act; all intellectual operations are suspended, and sleep inevitably supervenes.

The amount of sleep needed varies with the temperament somewhat, with the age, the health, and the degree of indulgence which a person will allow himself; but the amount absolutely required by an individual who has acquired his full strength depends simply upon the amount of activity, physical and mental, which is put forth. From five to eight hours may profitably be given to sleep. Eight

hours is probably better than less. It is mistaken economy to attempt to reduce the amount of sleep below what the system craves.

It is, however, possible to so train the powers, that some of them may be either not at all suspended, or but very partially so. Thus, a person may accustom himself to sleep while riding on horseback, but, there must be the continued exercise of sufficient muscular effort to keep the erect position. A physician will accustom himself to sound sleep in every other respect, while the sense of hearing is so far awake that his own name, though spoken in a low voice, will always arouse him.

With most persons, however, sleep is for several hours complete; that is, all of the faculties which are subject to it are completely suspended. But the continuance of this suspension is not the same for all of the faculties; some which have become sufficiently rested, begin to act before the others are aroused. Some people plan their business for the day while the muscular powers and the senses are still asleep; the mind being first sufficiently rested for renewed activity. Under the same circumstances, there is no doubt but that difficult problems in the arts and mathematics have been solved.

It may be called dreaming, but it is simply an energetic action of the intellectual powers, rendered more perfect because none of the powers of the system are otherwise employed, and because the succession of thoughts is not interfered with by impressions coming from without. When the powers of voluntary motion are awake and others are asleep, the person may take the most active exercise or walk, sometimes for miles without arousing the powers.

Incubus or night-mare admits of a similar explanation. When the mind first awakens, the train of associations may, from various causes, be of a disagreeable character. Particular ideas may have been so constantly in the mind before sleep came on that they more readily return. The imminent danger from which we had escaped the previous day may

have impressed us so vividly that the thoughts of it first occur to the mind when the powers are aroused. A sudden noise, an uncomfortable position, cold feet, or disturbed digestion, may predispose the mind to alarming conceptions. Every conception is, by our constitution, with a belief of the existence of the object to which the conception corresponds. In case of incubus, the object of conception does not exist, and yet, as the senses, which are the connective agents, are asleep, there is necessarily a belief that it does exist. There is no avenue open by which a person's mind can be reached to convince him that his conception is erroneous. He therefore suffers all that would result from real danger; at the same time the power of muscular action is asleep, and he can make no efforts to relieve his condition.

Dreaming seems to consist in a certain degree of activity of the mind, while some of the other powers are active to such an extent that they are continually interrupting the succession of thoughts, and yet do not control them. Hence arises the want of continuity in our dreams, and the succession of such incongruous ideas. Hence, also, the observation, so often made, that such sleep does us but little good; it does not rest us, and simply because it is not sleep.

THE REPAIRING SYSTEM.

The body is subject to constant waste. The vital motions, the mechanical forces of the body, the development of the heat, even the processes of thought are necessarily connected with wear, and therefore waste. While the body is growing the supply must be greater than the waste; but when the body has attained its growth, the supply is exactly equal to the waste. Our food, that is, all that is taken into the system, whether in the solid, liquid, or gaseous form, constitute this supply.

The processes of receiving food, of whatever form, into the system, of elaborating it, and then of eliminating it, com-

prise all of the functions of the repairing system. A full examination presents to us,

First, a Digestive System, by which food is taken into the body and by which the nutritive part is separated from the useless and introduced into the blood.

Second, a Circulating System, an arrangement of tubes and forcing apparatus, by which the nourishing fluid, the blood, is carried through the body and appropriated to the building up of the several parts.

Third, a Respiratory System, an arrangement by which the oxygen of the air is incorporated with the blood, carried to all parts of the body, and is thus enabled to decompose (burn) the structures which the food has built up.

Fourth, an Absorbent System, a kind of scavenger arrangement by which such material as has for any purpose been removed from its regular channels may be picked up and again made use of.

Fifth, a Secreting System, by which all material, as it becomes refuse, may be removed from the body.

There are, therefore, five classes of organs belonging to the repairing system.

CHAPTER I.

OF DIGESTION.

OF the nutritive processes, digestion is the most important, as through it we receive food, and prepare it for appropriation by the various tissues of the body. It includes several processes, all tending to one object, viz., the reduction of food to a homogeneous fluid, the chyle, capable of absorption by the lacteals in the intestines, and fit to be poured into the circulation near the heart, for the maintenance of the blood in a healthy condition. These processes are: the prehension of the food by the lips and tongue, its mechanical division by the teeth, its mixture with the saliva, its conveyance to the stomach, its solution there by the gastric juice, the separation of the nutritious principles by the lacteals, and the final rejection from the body of the indigestible portions.

The alimemtary canal, in which these processes are carried on, is lined by mucous membrane, continuous with the skin, which it resembles in its essential characters, many glands send their ducts to open upon it, of which the principal are the liver and pancreas, the mucous and the salivary glands; it is freely supplied with vessels and nerves, and is, therefore, as most persons know to their sorrow, very liable to painful congestions and inflammations.

The Organs of Mastication and Deglutition.

These organs are the teeth, salivary glands, the tongue, the pharynx, and the œsophagus.

The teeth are composed of ivory and enamel. The ivory (2, Fig. 97) is harder than ordinary bone, and constitutes the principal part of the tooth. The enamel (1) is the densest material in the body.

The first set of teeth contains but twenty, the double molars being wanting. As the alveolar processes of the child enlarge, these teeth become loose, the roots are absorbed, and they are easily extracted.



Fig. 97.

The second set consists of thirty-two, eight in each jaw on each side. The first and second in front (1, 2, Fig. 98) are thin, have sharp cutting edges and are called incisor teeth. The third (3) is a strong tooth deeply set, is brought to a blunt point and is called the canine tooth. The fourth and fifth (4, 5) have each one root, with somewhat flattened surfaces, and are called *single molar* teeth. The sixth, seventh, and eighth, (6, 7, 8,) have their roots in the upper jaw and two in the lower, large bodies, broad surfaces, and are the *double molar* teeth. Thus there are eight incisors, four canine, eight single molars, and twelve double molars. The teeth are designed to last a life-time and should, therefore, be carefully attended to. In the first place, care should be taken to prevent deformity. If the first teeth are not removed at the proper time, this does not prevent the teeth of the second set from coming, but it compels them to make their appearance where they ought not to be, either back of the other teeth, so as to be in the way of the tongue, or in front of the other teeth, so that the lips will scarcely cover them. If, however, the tooth of the first set is removed as soon as the second is perceived, the second will generally come in its proper place.

It sometimes happens that the teeth are too wide for the space which they are to fill, and some of them must be either too prominent or they must be set irregularly. In such cases the only way is to have a tooth removed, so that those which are left may have sufficient room.

In the second place no *foreign substance* should be allowed to remain on or between the teeth. They should be washed with a brush and water after every meal; otherwise, particles of food which remain between the teeth will, by decomposition, render the breath offensive, and ultimately cause the decay of the enamel.

A solid substance, called *tartar*, also frequently collects on the teeth and extend toward the roots, so as to loosen the gums and make them tender. When this has accumulated

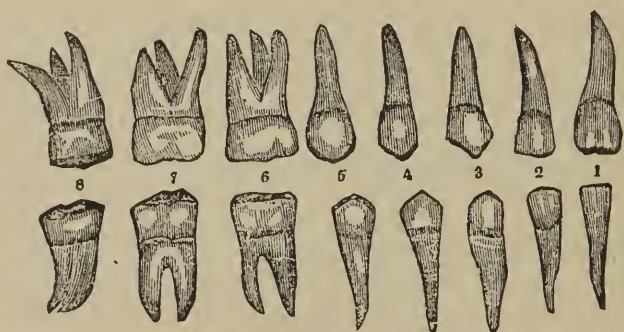


Fig. 98.

The second teeth in both jaws. 1, 2, the incisor teeth. 3, The canine teeth. 4, 5, The single molar teeth. 6, 7, 8, The double molar teeth.

in considerable quantity, the aid of a dentist may be necessary to remove it, but its accumulation may always be prevented by proper attention to washing the teeth.

In the third place great care should be taken to preserve the enamel. It is specially designed by its hardness to protect the ivory of the teeth; but this property also increases its brittleness, and renders extremes of temperature from taking very hot drinks, or very cold, such as ice-water or ice, or any excessive pressure upon them, such as cracking nuts, or cutting threads, likely to injure them permanently. When the enamel of a tooth is cracked, so that the air, or the liquids of the mouth can get to the ivory, the tooth soon begins to decay, and is often reduced to a mere shell of enamel before we are aware of any imperfection.

But when the teeth do become defective, the decay can, if taken in season, be arrested by having the decayed portion removed and the cavity filled with gold.

This is important, in order to preserve the features, the voice, the health, and the means of masticating food. Its importance is indicated by the severe pain, which, as a warning, is liable to attend such decay. When, however, a tooth is so far gone that it can not be preserved, it should be extracted at once.

The saliva, by which the food, as well as the interior of the mouth is moistened, is furnished by three pairs of *glands*.

The *parotid gland*, (1, Fig. 99) is situated below and in front of the ear. It is this gland which is affected by a peculiar form of inflammation called the “mumps,” to which it can be subjected but once. The sub-maxillary gland (3) is on the inside and near the angle of the lower maxillary bone. The sub-lingual gland (5) lies immediately under the tongue. The secretion from these glands is conveyed to the mouth by the ducts (2, 4).



Fig. 99.

Fig. 99. The salivary glands. 1. The parotid gland. 2. The duct by which its secretion is conveyed into the mouth. 3. The sub-maxillary gland. 4. its duct. 5. the sub-lingual gland.

The secretion from the salivary glands depends in part upon the gratification of the taste; but it is also promoted by the motions of the jaw in mastication. This is one reason why food should be eaten slowly and well masticated.

The tongue is attached at its base to the *os hyoides*, and the motions of this bone, by its proper muscles, carry the tongue backward or forward, and raise or depress it. The tongue itself also consists of muscles, so that it can be

shortened or elongated, and applied to all parts of the mouth.

It is the principal organ of taste, and one of the most essential modifiers of sound; but, as connected with mastication, its office is to control the food in the mouth until it is swallowed.

The *pharynx* is the back part of the mouth, and is at the same time the upper portion of the tube which leads from the mouth to the stomach. From the upper posterior part the eustachian lead to the tympanums of the ears; in the upper front side are the two openings leading to the nostrils, and at the base of the tongue on the front side is the opening into the larynx and trachea. The pharynx is surrounded by muscles so arranged that by their contraction it can be reduced in length, and its sides can be brought nearly together.

The *esophagus* (Fig. 100) is a continuation of the pharynx to the stomach. It is a fleshy tube composed of two sets of muscular fibres, of which the inner ones (*a*, *b*) are circular and serve to diminish its diameter, while the outer

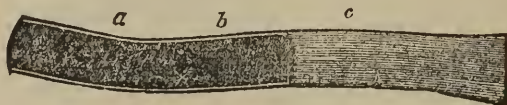


Fig. 100.

Fig. 100. The esophagus. *a*, *b*. Circular muscular fibres. *c*, A layer of longitudinal muscular fibres outside of the circular.

ones are longitudinal (*c*), and by contraction tend to shorten the tube.

The object of these organs is to prepare the food for digestion and to convey it into the stomach. Without going into detail of the whole process of mastication, we will say at the instant when the food is placed in the pharynx and the principal orifices are closed, there is a strong involuntary contraction of the muscles composing the sides of the pharynx, and the masticated food is passed into the esophagus, which, by the successive contraction of the circular fibres forces it downward into the stomach.

SEC II. *The Stomach.*

The alimentary canal, when it has passed downward

through the diaphragm, becomes at once enlarged into a bag called the *stomach*, (Fig. 101) of variable dimensions, but capable of containing, when moderately distended, from two to three pints. Its larger extremity is in direct contact with the diaphragm, and as it lies obliquely across the spine from the left to the right, its smaller extremity is considerably

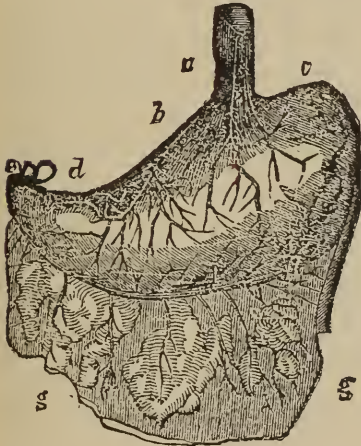


Fig. 101.

Fig. 101. The Stomach. *a*, The esophagus. *b*, The smaller curvature. *c*, The cardiac extremity. *d*, The pyloric extremity. *f*, The larger curvature. *g, g*, The omentum.

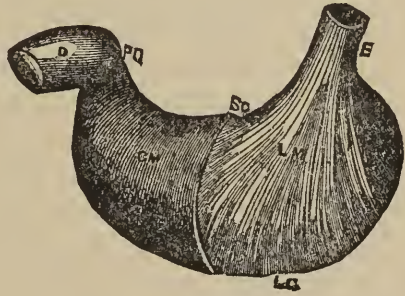


Fig. 102.

Fig. 102. Muscular coat of the stomach.

lower. The opening of the esophagus into the stomach is called the cardiac orifice, and that at the other extremity is called the pyloric orifice.

The stomach is composed of three coats: The exterior is of condensed cellular substance, and is in fact the peritoneum attached to its muscular layers. This outer coat, being continuous with the lining membrane of the abdomen, must retain the stomach in its place. The middle coat is muscular, and the fibres, though crossing each other in all directions, may, most of them, be classed as either longitudinal (*l, m*, Fig. 102) or as circular (*c, m*). The interior is a mucous layer, the inner surface of which is covered with papillae, which gives it a velvety appearance, and it is furnished with a large supply of nerves and bloodvessels.

When food is taken into the stomach, the circulation in the mucous coat is increased, and the color changes from a

pale pink, to a bright red, and a fluid called the gastric juice, which is slightly viscid, transparent and feebly acrid is abundantly secreted.

At the same time the muscular fibres of the stomach are successively contracted and relaxed, and the gastric juice is thus thoroughly mingled with the food and converts it into a homogeneous, pulpy mass, called chyme.

This process of changing the food into *chyme*, is not a vital but a chemical one. If gastric juice be taken from the stomach and mingled with the food in a state of minute division, and the ordinary temperature of the body be maintained, the formation of chyme will take place precisely as it does in the stomach. It may be shown that most substances that we eat have a complex composition. The object of stomach digestion is to separate that which is food from that which is not, and then to render soluble and actually dissolve the nutritious elements. To do this is the function of the gastric juice. The daily amount of this secretion may be put down at fourteen pounds. The active principal of the gastric juice is a peculiar substance called *pepsine*, a nitrogen compound, not unlike the nutritive food. It seems to be part of the mucous coat of the stomach in the process of decomposition. When slightly acidulated, as it is in the stomach, it tends to communicate the same change to similarly constituted bodies with which it comes in contact. Instances of this kind are of frequent occurrence. Vegetable substances, apples for example, beginning to decay, will communicate to others that are sound, the same changes, that is, they will bring on decay. The action of yeast is to put in operation in the gluten of flour the same chemical changes which the yeast itself is undergoing. In the same way the pepsine of the gastric juice being a nitrogen compound in a state of change, will decompose the nitrogenized parts of the food in the stomach so far as to separate them from the non-nitrogenized parts, and from the woody tissue, and convert them, not only into a soluble state, but also into that particular state of solution in which they

are capable of passing freely through the membrane. In this state they are absorbed by the interior surface of the stomach, and introduced into the blood. Thus one of the objects of digestion is accomplished; that is. the nutritive elements of the food have been furnished to the circulation. But the respiratory elements pass on unchanged through the pyloric orifice into the duodenum.

The digestive system requires more care than any other, partly because of its general importance, but especially because our enjoyments depend so much upon it, that we are in danger continually of overtasking it. The practical rules by which we should be governed in reference to it are, however, very simple and the reasons for them easily comprehend. They relate to the materials of food, the amount required, the frequency with which it should be taken, and the conditions of the system favorable for its elaboration. An exhaustive discussion of this subject, will be found under the head of Hygiene.

SECTION III. *The duodenum and organs connected with it.* The duodenum (*p, e, i*, Fig. 103) (also 5 Fig. 104) is the commencement of the small intestine, from which it is distinguished by being more closely confined in its position, and by its not being connected with the spine by the mesentery. It arises from the stomach at the pyloric orifice, and is from eight to ten inches in length. Like the stomach and the intestines it is composed of three coats.

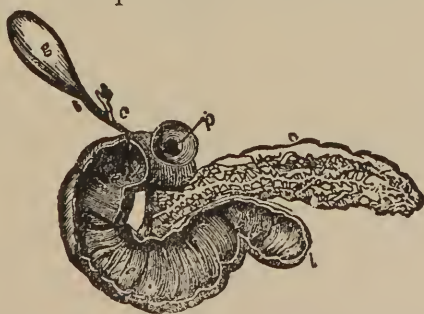


Fig. 103.

Fig. 103. *e, e*, The Duodenum. *p*, The pyloric orifice of the stomach. *g*, The bile sac. *c*, The duod from the liver, *o*, The pancreas.

The *liver* (3, Fig. 104) is the largest gland of the body, and is situated on the right side of the abdomen, in contact with the diaphragm above and the pyloric portion of the stomach below. It receives a small artery by which its nourishment is conveyed to it. But it is supplied with a large amount of *venous blood*. It is the only gland which is supplied with venous blood, and a special arrangement of blood-vessels, called the *portal system*, is furnished which collects the venous blood from all of the other digestive organs and empties it into this gland. The bile is secreted

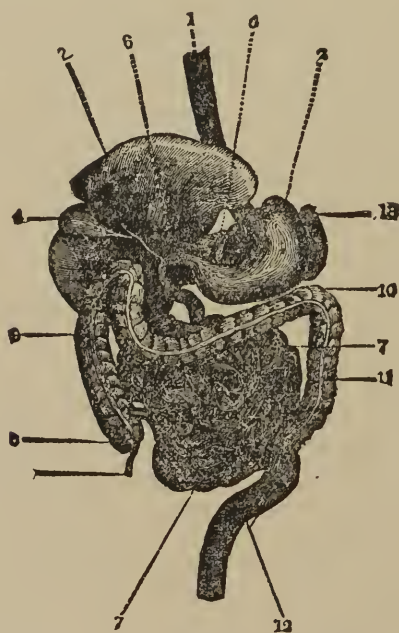


Fig. 104.

Fig. 104. The digestive organs. 1. The esophagus. 2. The stomach. 3. The liver. 4. The bile sac—its direct opening into the hepatic duct. 5. The duodenum. 6. The pancreas. 7. The small intestine. 8 to 12. The large intestine. 13. The spleen.

from this blood, and is a slightly viscid fluid, greenish, bitter, and alkaline. There is a duct (*c*, Fig. 103) leading from the liver to the duodenum, and another from the bile sac (*g*) opening into it.

During digestion, the bile passes, as it is secreted, directly to the duodenum; but, during the intervals of digestion, often filling the duct, it passes backward into the bile sac, and is retained until digestion again commences.

The average daily secretion of bile is about two and a half pounds. It consists mainly of two ingredients—the coloring matter, which is merely a refuse substance not again used in the system, and some oily materials, combined with soda, forming a peculiar variety of soap. This is reabsorbed as part of the chyle. Thus a portion of the bile becomes excrement, and to this end the liver is an organ for eliminating waste material from the body. The saponaceous portion goes again into the circulation either as an economical use of material, or it may serve some useful purpose not fully understood in connection with the absorption of chyle.

The secretion of bile is from the portal blood, regarded simply as venous blood, but it also contains the nutritive elements of the food which have been absorbed by the stomach. The liver performs important changes upon this newly admitted portion of the portal blood. The general object seems to be to prepare it for being acted upon by the respired oxygen. Accordingly it converts a portion the new material into liver sugar, a form of combustible food in the best condition for use in the lungs. The blood cells in a state of formation seem also to receive important additions in their passage through the liver.

The pancreas (o, Fig. 103) is a gland about six inches in length, situated behind the stomach and across the spine.

It secretes a fluid resembling the saliva, which is conveyed by the pancreatic duct into the bile duct, and is thence emptied into the duodenum,

The amount of pancreatic fluid is about one-half as much as the bile, and has no other known agency except the change which it effects in the digestive process. The chyme as it enters the duodenum contains all the oily, saccharine, and starchy ingredients of the food nearly unchanged.

The action of the stomach has been to separate the nitro-

ginized compounds and introduce them into the portal blood. The pancreatic juice, influenced to a great extent by its alkaline character, changes starch into sugar. Sugar, whether taken into the system as such, or derived from changes upon starch, is decomposed into lactic acid, and in this condition is readily absorbed.

The pancreatic juice, while it does not decompose the oily constituents of food, does bring them into the condition of an *emulsion*. This will be best understood by remembering that milk is essentially an emulsion. The water, which is its chief constituent, does not dissolve the butter, but it holds it suspended in particles of extreme minuteness, and it is only by long standing that the oily particles arise to the surface. The white color results from these suspended particles of oil. The pancreatic juice is capable of bringing into minute division the oily substances of the food, and holding them into this condition of an emulsion.

It is then the office of the pancreatic juice to bring into a condition suitable for absorption all of the respiratory elements of the food.

The respiratory portion of the food in this condition is called *chyle*. It has a milk-like appearance and consists of the useful portion of the bile, of an emulsion of the oily parts of the food, and of the starchy and saccharine parts, mostly in the form of lactic acid. There remains then only that part of the food which is incapable of being vitalized and appropriated. The two substances in this condition enter into the small intestine.

SEC. IV. *The Intestines*.—*The small intestine* (7, 1, Fig. 104) is a continuation of the duodenum and is about five times the length of the body.

This intestine, is supported by the peritoneum which is, the membrane that lines the cavity of the abdomen. Where this membrane comes to the spine it goes forward so as to inclose the intestine, then returns to the spine and continues its course, This duplicature of the peritoneum forms the

outer coat of the intestine, and the double membrane between the intestine and the spine is called the *mesentery*.

The intestines are subject to a constant vermicular motion, by which their contents are made to move slowly through them. The particles of chyle as they pass along the intestine, are gradually absorbed. The veins undoubtedly absorb to a considerable



extent, those which are not oleaginous. These veins are feeders to the portal system. Thus all the products of stomach digestion and part of the products of intestinal digestion are subject to the action of the liver before they pass to the heart and lungs. The lacteals absorb the remaining portions of the chyle.

The lacteals pass through small glands within the mesentery, and continue to unite as they approach the spine, where they form but one vessel (4) *the recepticle of the chyle*. This vessel forms a continuous tube up the spine, where it is called the *thoracic duct*, and opens into the vein (the descending vena cava at 10), which collects the blood from the head and upper extremities.

The chyle, as it appears in the lacteals, contains also some nutritive elements, whether derived from the chyle in the intestine or absorbed from the continuous blood-vessels. In fact, the oil globules seem to be coated with a substance of this kind. Some of these oil globules, in passing through the mesentery glands, become incipient blood-cells, though they have not yet assumed the red color. It seems also that these glands convert some of the nitrogenized material which passes through them into fibrine. So that the chyle, as it appears in the thoracic duct, contains both fibrine and incipient blood-cells.

We have seen that part of the new material from the food as it passes through the liver, is converted into liver sugar, and the new blood-cells undergo modification. The other part of the new material is changed in passing through the mesenteric glands, some into fibre, the source of muscular repair, some into blood-cells, and a portion remains in its



Fig. 107.

Fig. 107. Representing the general plan of the arterial or circulatory system.

chanical motion to the abdomen, and the feces become hardened, and may remain for days. This, however, cannot be without injury. The system should be required to conform to rule, and a constipated state of the intestines will then seldom occur.

CHAPTER. II.

OF THE CIRCULATION.

The circulating fluid is the *blood*. It contains the materials which are necessary for the formation of all the tissues of the body, such as brain, muscle, bone, etc., and those which are employed in the various repairs which the body requires; and we have seen how these materials are continually elaborated and furnished by the digestive process.

The amount of blood has been variously estimated, but twenty pounds is probably about its average weight.

We may regard the organs of circulation as a simple hydraulic apparatus, designed to establish the motion of a liquid in a given direction, and through a given circuit. It must then contain a set of tubes in which the liquid is to be conveyed, so fitted with valves as to prevent the motions in one direction and allow it freely in the other, and means of exerting the force necessary to produce the required motions of the fluid. The heart, arteries and veins are designed to fulfill these conditions.

The *heart* is inclosed in a strong cellular substance (1, Fig. 108) called the pericardium, the inner surface of which supplies the lubricating fluid for the motions of the heart. The mediastinum is the double membrane which comes forward from the spinal column to the sternum, and divides the thorax into two cavities. The heart, with its pericardium, is situated between the two layers of the mediastinum (4, Fig. 110) encroaching more upon the cavity of the left side than the right, with its apex directed downward and resting on the diaphragm.

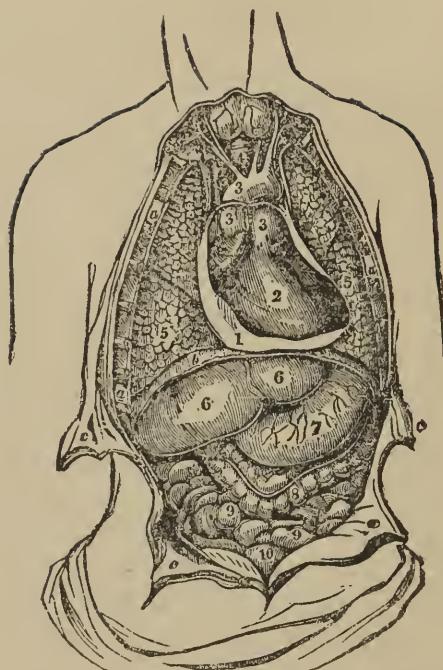


Fig. 108.

Fig. 108. 1. The pericardium. 2. The heart. 3. 3. Blood vessels from the heart. 4. The trachea. 5. The lungs. 6. The liver. 7. The stomach. 8. The large intestine. 9, 10. The small intestine.

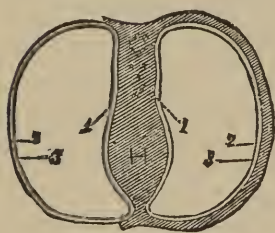


Fig. 109.

Fig. 109. A horizontal section of the thorax. The two membranes 1, 1', constitute the mediastinum. 2, 2'. The same membrane extends so as to line the cavity of the thorax, where it is the pleura costalis. 3, 3'. The continuation of it, so as to cover the lungs, the pleura pulmonalis.

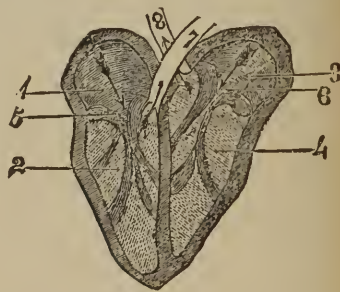


Fig. 110.

Fig. 110. 1. The right auricle. 2. The right ventricle. 3. The left auricle. 4. The left ventricle. 5. The orifice from the right auricle to the right ventricle. 6. The orifice from the left auricle to the left ventricle. 7. The pulmonary artery. 8. The aorta.

The average weight of the human heart is nine ounces and a half. Its work in a day is equal to raising one hundred and twenty-four tons one foot high. The height to which it could raise its own weight in one hour equals nineteen thousand seven hundred and fifty-four feet. The best

effort in mountain climbing is only equal to one-twentieth of the energy of the heart for similar periods of exertion.

The substance of the heart consists of a mass of muscular fibres, so arranged as to inclose four cavities. Fig. 112 represents the valves of the heart and arteries.

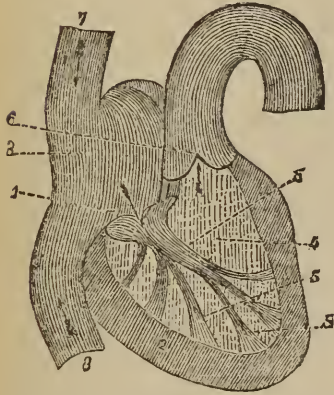


Fig. 112.

Fig. 112. 1. The orifice between the auricle and ventricle. 2. The muscular walls of the ventricle. 3. The auricle. 4. The ventricle. 5, 5, 5. The fleshy and tendonous ligaments by which the valves of the heart are strengthened. 6. Valves of the heart. 7. The descending vena cava. 8. The ascending vena cava.

Fig. 113. 1. A vein. In the lower part the vein laid open to show the numerous folds 2, 2, of the inner coat of the vein which acts as valves. 3. The opening of a branch into a larger vein.

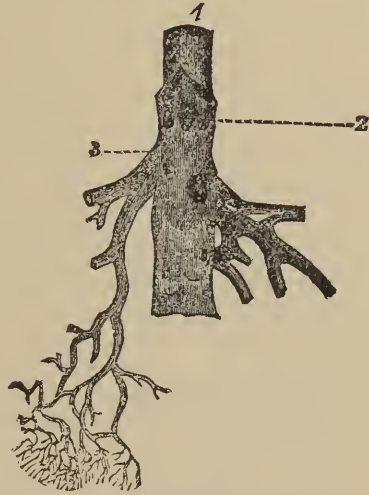


Fig. 113.

The Arteries are the strong cylindrical tubes, which convey the blood from the ventricles.

The arteries as they arise from the heart are each furnished with valves (6. Fig. 112) which are so constructed as to allow the blood to enter the arteries freely, but to prevent its going back into the ventricles.

The pulmonary artery arises from the right ventricle, and is distributed to the lungs.

The artery which arises from the left ventricle, and is distributed to the body, is called the *aorta*.

The veins are the tubes by which the blood is returned from the different parts of the system to the right auricle of the heart. Like the arteries they have three coats, but they are thinner and have less strength, though much greater capacity. They are furnished with a great number of valves

(Fig. 113) in the different parts of their course. The veins have the same general distribution as the arteries. Those from the head, thorax and upper extremities unite to form the *descending vena cava*. Those from the abdomen and lower extremities, unite to form the *ascending vena cava*. These two veins meet at the right auricle.

We may now trace the blood in its course through this system of vessels. It will become more simple if we regard the first auricle and ventricle as constituting one heart, and the second auricle and ventricle as a second heart. Such division actually exists in some animals. Let us commence with the blood, as it is collecting from every part of the system into the veins. We find these veins all lead to and terminate in the first auricle, from which the first ventricle receives it, and by contraction sends it through the pulmonary artery into the lungs. The circulating fluid thus far has been dark blood. In the lungs it undergoes certain changes, and receives a florid color. It is then collected by the veins of the lungs and brought to the second auricle, from which the second ventricle receives it, and by contraction sends it into the aorta to be distributed to all parts of the body, to be again collected by the veins. If we now regard these two hearts as brought together, and to economize room, united into one organ, we shall have a correct idea of the human heart and of the circulation through the system.

Without accurate calculation, we have very little idea of the *quantity* of blood thus sent through the system daily. The ventricle receives nearly two ounces of blood at each pulsation, which it discharges into the aorta about seventy-five times a minute, making nine pounds, or more than a gallon every minute, or two barrels an hour.

CHAPTER III.

OF RESPIRATION.

THE respiratory functions are performed principally in the thorax. The organs of respiration are: the larynx, trachea, and lungs. The larynx (Fig. 114) is composed of five cartilages.

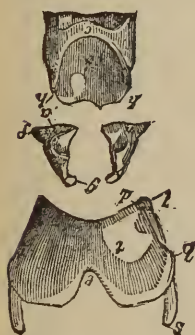


Fig. 114.

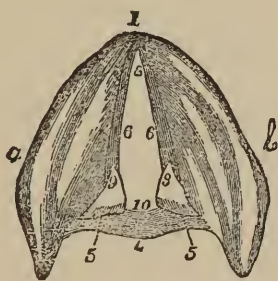


Fig. 115.

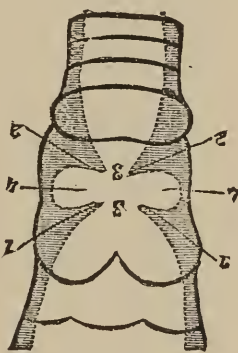


Fig. 116.

Fig. 114. Shows the cartilages of the larynx. *c, h*, The cricoid cartilage. *g*, The arytenoid cartilages. *t*, The Thyroid cartilage.

Fig. 115. 1, The front part of the larynx. 4, The posterior part of the cricoid cartilage. 5, 5, The arytenoid cartilages. 6, 6, The vocal cords. 9, The attachment of the cords to the arytenoid cartilages. 8, 10 The aperture called the glottis.

Fig. 116. 1, 1, The upper vocal cords. 2, 2, The lower vocal cords. 4, 4, The ventricles of the larynx.

A vertical section of the larynx from *a* to *b* in Fig. 115, would be represented by Fig. 116, in which 1, 1, are the superior, and 2, 2, are the inferior cords, and 4, 4, are the ventricles of the larynx. The arytenoid cartilages are so furnished with muscles that they are capable of considerable motion; and as one end of the cord 2, 2, is attached to them, it follows that they may be made tight or loose, or be made to approach or recede from each other.

The voice is made by the air from the lungs passing these cords, and its variations of tone depend on their adjustment. But it is subject to various modifications, from the capacity of the lungs, the force with which the air is emitted, from the form and size of the mouth, from the nose, the lips, the tongue, the teeth, etc. The tube thus formed is suspended from the os hyoides (*u*, Fig. 117) by a membrane (*n*). The fifth cartilage of the larynx (*i*) is the epiglottis, so placed as to fit like a lid over the opening between the superior vocal cords during the deglutition, and prevent food from entering the trachea. The *trachea* is the continuation of the larynx to the thorax. It is composed of from sixteen to twenty rings of cartilage, which, however, do not extend entirely around the trachea, but leave



Fig. 117. — The larynx. *i*, The epiglottis. *u*, The hyoid bone. *l*, The thyroid cartilages. *n*, The membrane extending from the hyoid bone to the thyroid cartilages.

extend entirely around the trachea, but leave a space behind, which is closed by membrane, and the rings are also attached to each other by membrane. Immediately behind the first form of the sternum the trachea divides into two branches (5, 6,) called *bronchi*, which go to the lungs.

The lungs are situated in the two cavities of the thorax. The left lung is composed of two lobes (See cut 118), and the right lung of three. Each lobe consists of a great number of divisions, called lobules. Each lobule is a congeries of air-cells, consisting of very delicate cellular membrane.

The bronchi, after entering the lungs divide into small tubes (See Fig. 119), and one of these tubes opens into each lobule. All of the air-cells in a lobule communicate with each other, but there is no communication between the air-cells of different lobules.

We have seen that the blood is subject to two distinct circulations, one of which is through the lungs. It reaches the lungs by the pulmonary artery, which is subjected to exceedingly minute division, and finally becomes a system of capillary vessels, which are distributed upon the membrane

composing the air-cells, bronchial tubes. The pulmonary veins receive the blood from these capillaries, and convey it back to the heart. The lungs are therefore composed of air-cells, arteries, and veins.

Respiration consists in receiving air into the lungs, and expelling it from them. this is effected by the alternate contraction and enlargement of the cavity of the thorax, and this change is performed by appropriate muscles, and not by any power belonging to the lungs. The thorax may be en-

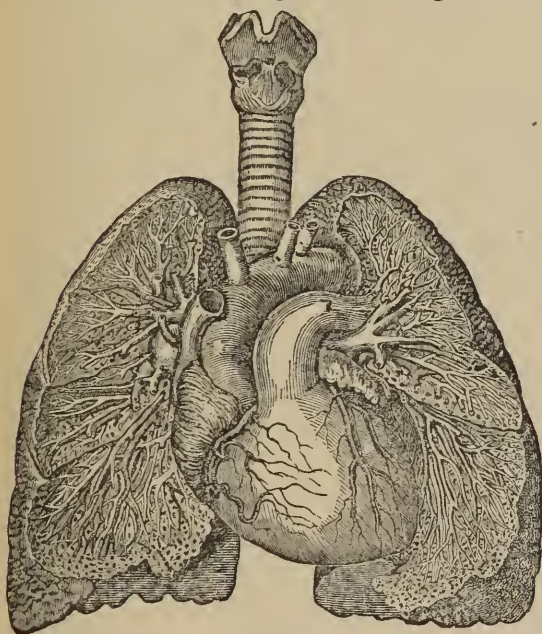


Fig. 118.

Fig. 118. Shows the larynx, wind-pipe, heart, and lungs, and the large vessels by which they are connected.



Fig. 119.

Fig. 119. A branch of the long bronchi before ending in the alveoles. After Henle.

larged in three directions. The diaphragm has the form of a compressed dome (4, 4, Fig. 120), and the contraction of its fibres tend to depress the dome, and reduce its position to (2, 2). The depth of the thorax is thus increased.

The ribs come obliquely forward and downward from the spine, so that their anterior extremities meet the line 2, 2, Fig. 121. There are several sets of muscles (8, 8,) so attached to the ribs, that their contraction will raise them to a

position nearly horizontal, and their extremities will be brought forward to the line 3, 3; that is, the transverse diameter of the thorax will be increased. The sides of the thorax will then have the position (1, 5, Fig. 120,) instead of 3, 4. At the same time the sternum will be thrown forward so as to occupy the position (7, 7, Fig. 122) instead of 6, 6, which it does when the thorax is contracted.

In ordinary respiration the diaphragm is the principal agent. But in forced respiration, nearly all of the muscles of the neck, thorax and abdomen are employed.

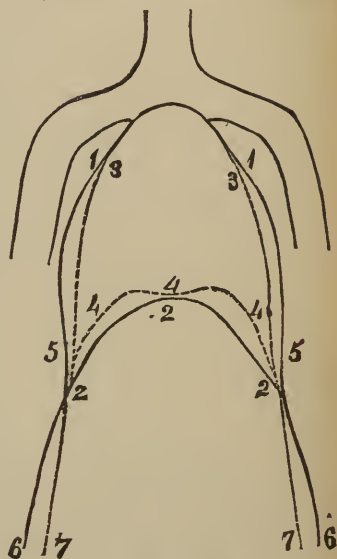


Fig. 120.

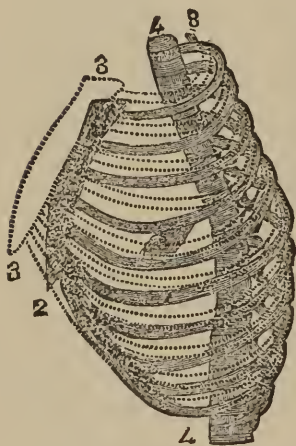


Fig. 121.

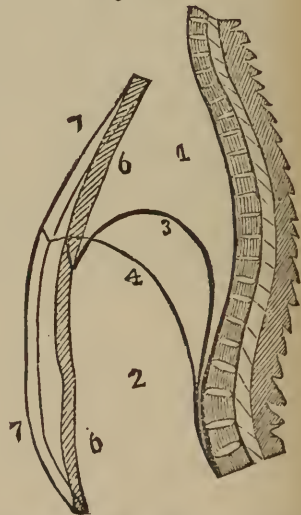


Fig. 122.

Fig. 120. A front view of the thorax in respiration. Air is drawn into the lungs by the compression of the diaphragm to the line 2, 2, at the same time the sides of the thorax take the position 1, 5. Air is expelled from the lungs by diminishing the cavity of the thorax. This is effected in part by compressing the sides to the dotted line 3, 4. In part, also, by compressing the abdomen, from 6 to 7, thus elevating the stomach and liver, and lifting the diaphragm to the dotted line 4, 4.

Fig. 121. 1, 1. The ribs. 2, 2. The sternum in the position which it takes in expiration. The ribs are raised during inspiration, so that the sternum is brought forward to 3, 3. 4, 4, the spine. 8, 8. Muscles by which the ribs are raised at inspiration.

Fig. 122. Side-view of the thorax. 1 The cavity of the thorax. 2, The cavity of the abdomen. 3, and 4, The different positions of the diaphragm in expiration and inspiration. 6, 6, and 7, 7. The different positions of the sternum and abdomen.

CHAPTER IV.

ABSORPTION.

The lacteals are a part of the absorbent system, designed for the absorption of the chyle from the small intestine, and have been described in connection with the digestion. The *veins* are also absorbents. Most of the absorption of the the system, is undoubtedly performed by them; for the sixty gallons of blood which they return to the heart every hour, is sufficiently charged with absorbed matter, to change sensibly its properties. It is one special function of the veins to absorb from the stomach the nitrogenized elements of the food. Another office of the veins as absorbents, is to take up the waste products occasioned by the decomposition of the living tissues.

There is a third class of absorbents called *lymphatic vessels* (Figs. 123, 124, 125.) They commence by a network of exceedingly minute tubes in all parts of the surface of the true skin, and of all the free surfaces, such as the membranes which invest the brain, and the serous membranes generally, the mucous and synovial membranes, the surface of the eye, and the interior surface of the arteries and veins. The network of these is so close (Fig. 126) that when injected the surface looks like a pellicle of quicksilver. As they leave the surfaces in which they originate, they are still slender tubes but abundantly supplied with valves, occasionally passing through glands and, though not uniting into large tubes like the veins, they converge toward the centre of the system, and finally unite in the thoracic duct.

In all parts of the body there are substances which have

performed the offices for which they were intended, and being no longer useful, require removal. Of this nature are the secretions within the joints, thorax, abdomen, and cranium. In like manner, particles of the body, either from its



Fig. 123.



Fig. 124.



Fig. 125.



Fig. 126.

Fig. 123. A lymphatic vessel, magnified.

Fig. 124. A lymphatic vessel, laid open to show the valves.

Fig. 125. Lymphatic vessels passing through glands.

Fig. 126. A plexus of lymphatic vessels in the skin, magnified.

ordinary motions, or from accident, as in cases of bruises, extravasation of blood, etc., are continually losing their vitality, and need to be removed. The removal of such substances seems to be specially the duty of the lymphatic vessels.

When the quantity of refuse matter in any part of the body is greater than the absorbents can remove, a tumor is formed, which increases in size till it opens a passage to the surface and the vitiated matter is discharged.

Eruptive diseases consists in the deposition of such matter near the surface of the body, as the absorbents will not act upon.

These vessels, though they do not reach through the cuticle, are yet capable of taking up substances which exist on the surface and conveying them into the blood. Unguents, poisons, and contagious miasma, as well as moisture and liquid nutriment, are sometimes in this way conveyed into the circulation. Refuse and unwholesome matter is constantly thrown from the system by perspiration, and, if not removed by frequent ablutions, will be re-absorbed and tend to generate disease.

CHAPTER V.

OF SECRETION.

THE SECRETIONS of the system have several objects. There is one kind of secretion the object of which is to lay up in store substances which the system may afterwards need. The adipose matter, the fat of the system, is such a substance. It comes from the elements of respiration.

A second class of secretions is designed to accomplish particular objects in the system. When these are accomplished, the secretion again returns to the circulation. Such are the secretions from the serous and some of the mucous membranes.

A third class of secretions are also designed to accomplish special purposes in the system, but having accomplished these purposes, are of no further use. Such are the tears, the ear-wax and the secretions.

A fourth kind of which the urine is perhaps the only example, has no other known object except the separation of refuse matter from the blood, and the rejection of it from the system.

The skin furnishes two kinds of secretion, one from the follicles and one from the perspiratory tubes. The *follicles* are small cavities situated in the substance of the true skin, and opening at the surface by narrow orifices. They are found in all parts of the surface but are most abundant in the arm pits, the groins and on the face and nose. They furnish an unctuous secretion, which serves to soften the cuticle, and probably to prevent it from being affected by the dryness or moisture of the atmosphere.

The most important action of the skin is that of *perspiration*. This function is performed by small tubes which commence below the true skin in the perspiratory glands (g, g, Fig. 127.)

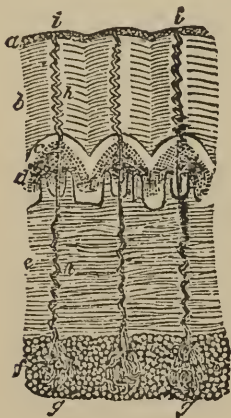


Fig. 127.

Fig. 127. Section of the skin of the finger, magnified fourteen times its thickness. g, g. The perspiratory glands, situated in the cellular tissue, f, below the skin. h, h. The perspiratory tubes, passing through the several layers of the skin, and opening upon the surface. i, i.

Fig. 128. Section of the kidney.

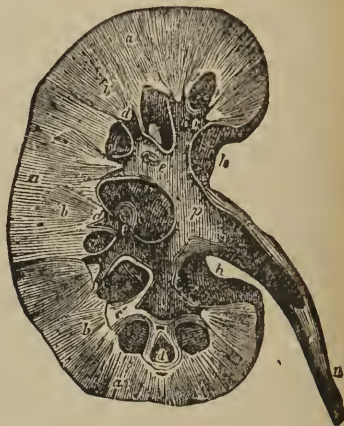


Fig. 128.

g, Fig. 127.) These tubes pass by a spiral course through the true skin and cuticle to the surface. The orifices of these tubes are in popular language the pores of the skin.

Secretion from glands.

Most of these secretions are subservient to other functions, and have already been described. The principal of these secretions are from the lachrymal and salivary glands, and from the liver and pancreas.

The kidneys (Fig. 128) are two large glands situated in the lower part of the abdomen, one on each side of the spine. They receive a very large supply of blood, and secrete from it the urine, which is conveyed by the ureters to the bladder, and is thence expelled from the system. The importance of this secretion consists in the fact, that it is the only one by which certain substances can be eliminated.

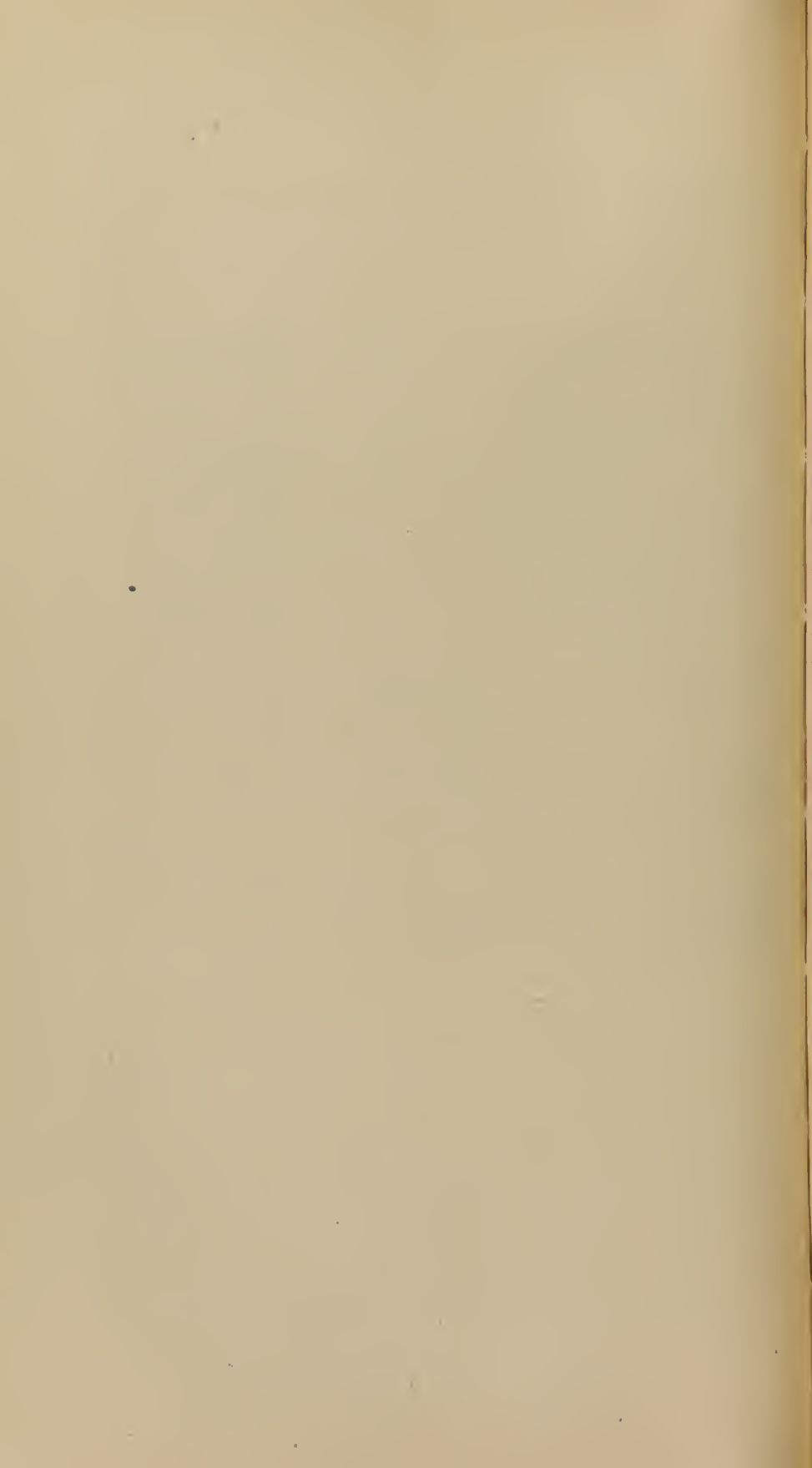
The urea, that is, the solid portion, which remains when urine is evaporated, is derived from the decomposition of the tissues, muscle, cartilage, etc. It is the nitrogenized com-

pound left when the oxygen of the blood cells has combined with most of the carbon. For the separation of this substance from the blood there is no other provision but the kidneys; and if it were not removed, the blood would very soon be incapable of carrying on the functions of nutrition.

In addition to the glands above named, there is the *spleen* situated at the left of the stomach, the office of which is supposed to be to receive the blood, during the intervals between digestion, which the stomach receives while digestion is going on, and thus the constant and injurious accumulation of the gastric juice is prevented. There are also the *Thymus* and *Thyroid glands*, situated in the neck, which are subservient to infantile life, probably by receiving and returning the blood which in maturer life is sent to the brain. •

The healthy action of the secreting organs is of the utmost importance. If the urine is not secreted the blood is soon poisoned. When this secretion is too copious it becomes a dangerous disease. If the gastric juice is deficient digestion ceases. Upon derangement of the biliary secretion arise some of the most formidable diseases. If the synovia is not secreted, the joints become immovable, etc.

It is also important to observe that there is an intimate sympathy between several of the secreting organs, especially the skin, mucous membrane of the nose, the intestines, the lungs, and the kidneys.



HYGIENE.

THE greatest blessing of this life is good health ; the greatest curse, ill health. Without health a man can not be happy, and hardly prosperous ; with a diseased organism he is his own greatest enemy, and a promoter of unhappiness to others. A man's health is largely in his own hands, subject to the air he breathes and the food he eats. George Preston Brown, in an excellent little book on sewer gas and its dangers, makes the following remarks :

“ Parents mourn the loss of children, young and old the death of friends, and, somehow, could not get rid of the idea that there is a kind of fatality in death, or that a cruelly kind Providence has cut short the life of this one or that one, ‘ for the best.’ Some people look upon sickness as a scourge for their sins, and others affect to believe that it is often ‘ constitutional,’ by which they are supposed to mean that incurable afflictions are inherited, or fastened upon themselves in some other doubtful way ; while, in fact, they may have simply tainted their blood and devitalized the tissues of their bodies by breathing foul air, or taken food or drink which disorganizes rather than builds up the system. There is a popular belief that physicians have the power to cure most, if not all, diseases, and when a man is taken sick, his first impulse is to send for a doctor. If he recovers the physician is given credit ; if he dies, his friends say that it was due to improper medical treatment. If people would only learn and then profit by the knowledge acquired, that it is better and easier to prevent disease and physical disorganization than to cure and reorganize after the affliction, life would be prolonged, and death made easy and natural. The physician might then dispense with his drugs and devote himself to the preservation of health, instead of its restoration.

A great many elements enter into the causes of preventable diseases. In a city there is apt to be tainted or adulterated food, especially for the poorer classes, who are compelled to live cheaply, and whose houses, too often, lack comfort and convenience. In some cities there is apt to be poor water. Filthy streets give off exhalations which are nothing less than the breath of disease. Improper ventilation of houses, and especially of sleeping-rooms in which people breathe an atmosphere soon saturated with poison, is a more direct and potent cause of disease and diminished vitality than most people imagine. Finally, and most important of all, is the influence and effect of the poisonous air which escapes from sewers."

How to keep ourselves vigorous in mind and body, so as to be always fit for work and ready for enjoyment—to preserve unbroken that keen sense of life which makes it a luxury to draw our breath, that exhilarating feeling of self-command which makes toil a pleasure, and is itself a sure augury of success, is a problem we should all try to solve. Without going so far as the physician who maintained that a man's theological opinions depended on the state of his liver, we yet know very well how our feelings vary with our bodily condition, how dismal the world looks during a fit of indigestion, and what a host of evils disappear as the abused stomach regains its tone. Even in a money point of view to be always "in condition" would be equal, in the case of most men, to a considerable addition to their fortunes; work would go twice as far, and quarrels would be but half as frequent. I have heard it argued, indeed, that lawyers have quite as large an interest in the ill-health of mankind as doctors.

But health, like virtue, seems more easy to admire than to achieve. Is it not, indeed, the virtue of the body, and only to be attained by compliance with a system of rigid rules, and a life of scrupulous exactitude? No. Its preservation involves no such sacrifice; can not be purchased, indeed, at such a price.

It is possible for men, in certain states of society, to fulfil most of the laws of health—which are very simple—without any knowledge on the subject. Circumstances enforce upon them fresh air, exercise, natural rest, temperance, quietude of mind. But under any conditions these cases are not numerous, and in these days they are very few indeed. The time for an unconscious fulfilment of the laws of health is practically past. We must either know or suffer. For not a few of the very refinements and advantages of modern life have a direct tendency to interfere with the conditions necessary to health. We will first consider *food* in its relation to health.

All substances, in order that they may be nutritious as food, must contain three principles—the albuminous, the saccharine, and the oleaginous. Whenever any of these is absent, or present in too small a quantity, experience has led us, and taste has guided us, to add artificially to our food the missing constituents. Thus, for instance, wheat flour possesses gluten and starch, but is deficient in oil; hence our practice of taking butter with our bread, and of mixing butter, lard, or dripping, with flour in making pastry. By so doing we accommodate our taste, and at the same time make up the chemical compound that is necessary. For the same reason we eat cheese, or lettuce, or onions, with bread. We take fat meat with cabbages, turnips, and carrots; and oil or melted butter with many varieties of vegetables, both cooked and raw.

All vegetables that we eat raw contain a large proportion of water; unconsciously we imitate this in cooking. In order to convert flour into bread, we mix it with nearly its own weight in water.

Among all arts known to man, there is none which enjoy a juster appreciation, and the products of which are more universally admired, than that which is concerned in the preparation of food. Led by an instinct almost approaching intelligence, as the unerring guide, and by the sense of taste, which protects the health, the experienced cook, with respect to the choice, the admixture, and the preparation of food, has

made acquisitions surpassing all that chemical and physiological science have done in regard to the doctrine or theory of nutrition. In soup and meat sauces he imitates the gastric juice; and by the cheese, with which he closes the banquet, he assists the solvent action of the epithelium of the stomach. The table supplied with dishes, appears to the observer like a machine, the parts of which are harmoniously fitted together, and so arranged, that when brought into action a maximum effect may be obtained by means of them. The able culinary artist accompanies the sanguineous matter with those which promote the process of solution, and sanguinification in due proportion; he avoids all kinds of unnecessary stimuli, such as do not act in restoring the equilibrium; and he provides the due nourishment for the child, and for the old man, as well as for both sexes.

Different kinds of food produce different effects upon the the mental and physical powers of man. Every man feels better, both in mind and body, after a good dinner, than he does after a bad one. Men who are in the habit of taking strong nutritious food, cannot have the same constitutions as those who feed on vegetables and salted fish. Men who are compelled to live on this meager fare degenerate greatly, as we see in the Laplanders, the Esquimaux, and some tribes of negroes.

Food has three uses: Nourishing or repairing the waste of the system, producing heat, and supplying force.

The constant waste and decay of the tissues is the chief source of the demand for food; as this demand is in proportion to the functional activity of the muscular and nervous systems, we see the propriety of adapting the food to the habits of life; what would be necessary for the hard-working laborer in the open air, would be very injurious to the sedentary person.

Hunger and thirst.

The want of solid food is indicated by the sensation of hunger, and that of liquids by thirst; hunger is referred to

the stomach, thirst to the upper part of the throat ; but the conditions of these parts depend on the wants of the system.

The sensation of hunger is probably dependent on the turgid condition of the capillary vessels of the stomach, preparatory to the secretion of the gastric juice, excited by the sympathetic nerves, and communicated to the nervous centres ; when food is introduced, the fluid is secreted, the capillaries are relieved of their blood, and the immediate cause of the nervous impression is removed. It is well-known that hunger is temporarily removed by the introduction into the stomach of indigestible substances ; earth, clay, and other substances are swallowed by savages and travellers when hungry, with the effect of removing, for a time, the sensation of hunger ; but, as the wants of the system are not thus satisfied, this local relief soon passes away, and food is demanded more imperatively than at first. The sensation of hunger may not be noticed, if the mind or body be actively engaged ; the student who takes a light supper, may labor a great part of the night without feeling hungry ; but when he lays his aching head upon his pillow, to rest, his empty stomach warns him of the necessity of food, and refreshing sleep is out of the question till this be taken. Thirst, more than hunger, is connected with the general state of the system ; for it is immediately relieved by the introduction of fluid into the stomach from which it is very quickly absorbed by the veins ; in cholera, where the fluid excretions are unnaturally increased, the demand for liquids is extreme, and may be satisfied by injection into the veins instead of introduction into the stomach. Salted and spiced food, ardent spirits, and tobacco, cause thirst ; the former leading us to drink, that the food may be more easily digested, and the latter, that the dilution of the poison may excite less irritation in the mucous membrane.

The following, from an anonymous writer, is well worthy of a place : The first essentials of healthful eating are that the eater shall possess intelligence, and use good common sense. He must have intelligence enough to learn from ex-

perience and otherwise what it is best for him to eat and what to avoid, and must have common sense enough to follow his intelligence. A person should choose food adapted to his needs, varying it as much as possible. Healthful foods vary to suit the season and the condition and habits of the individual.

In winter the body requires ample supplies of fuel to keep up the animal heat in addition to what is needed to make up for muscular and mental waste. This requires such foods as contain carbon. The oils, as butter and lard, are composed mainly of carbon. All starchy foods, as the grains, rice, potatoes, peas, and beans, contain a large proportion of carbon. Corn meal and buckwheat, in addition to starch, contain a larger supply of oil than the other grains, and hence are especially good foods for cold weather. Acids or fruits should be used with all foods containing oils.

For warmer weather the foods containing carbon may be taken in smaller quantities, and the fruits and vegetables of the season used freely.

For people of sedentary habits, graham and oat-meal mush may be especially recommended. Cornmeal is better adapted to muscular labor than for mental exertion. Pure milk and kernels of wheat are the only articles of food that contain all the elements of the body. In our ordinary white flour a large part of the wheat kernel has been taken away. Experiments have proved that fine white flour will not sustain life more than a month, while unbolted flour furnishes all that is needed to sustain life.

In general terms, food should be abundant, substantial, nutritious, fresh, and well prepared. It should be borne in mind that digestibility and nutritiousness of food are not interchangeable terms, and should not be confounded. Thus rice is very quickly digested, but is not very nutritious.

HYGIENE.

HYGIENE.

HYGIENE.

TABLE OF DIGESTION OF FOODS.

EASY TO DIGEST.

Mutton,	Turbot,	Asparagus,
Venison,	Haddock,	French beans,
Hare,	Flounder,	Cauliflower,
Sweetbread,	Sole,	Baked apples,
Chicken,	Fresh fish,	Oranges,
Turkey,	Oysters, roasted,	Grapes,
Partridge,	Sauce bread,	Strawberries,
Pheasant,	Rice,	Peaches,
Grouse,	Tapioca,	Toast water,
Beef tea,	Sago,	Oat meal,
Mutton broth,	Arrowroot,	Prunes,
	Milk.	

MODERATE TO DIGEST.

Beef,	Turtle,	Apples,
Lamb,	Cod.	Currants,
Rabbit,	Trout,	Raspberries,
Pigeon, young,	Oyster, raw or ste'd,	Bread,
Duck,	Potatoes,	Farinaceous pudd's,
Wild water fowl,	Beets,	Marmalade,
Woodcock,	Turnips,	Rhubarb plant,
Snipe,	Cabbage,	Cooked fruits,
Soups,	Spinach,	Cocoa,
Eggs, soft,	Lettuce,	Coffee.
Butter,	Celery,	

HARD TO DIGEST.

Pork.	Crabs,	Nuts,
Clams, roast,	Shrimps,	Pears,
Veal,	Mussels,	Plums,
Goose,	Oil,	Chestnuts,
Liver,	Melted butter,	Pineapples,
Brain,	Eggs, hard.	Cucumbers,
Salt meat,	Cheese,	Carrots,
Sausages,	Fresh bread,	Parsnips,
Hashes,	Muffins,	Mushrooms,
Mackerel,	Pastry,	Pickles,
Salt fish,	Cakes,	Chocolate.
Lobster,	Custards,	

Rules for eating.

1. Eat regularly, say three times a day, and as nearly as possible always at the same hour.
2. Eat slowly, and masticate thoroughly, taking time to appreciate the great variety of tastes and flavors in food.
3. Use little or no fluids while eating ; wait until the close of the meal. Nature supplies saliva to aid deglutition.
4. Eat nothing between meals, unless it be some good, ripe fruits, and even these are better taken at the close of the regular meals, or better still half or three-quarters of an hour before breakfast, especially for such as are dyspeptic or whose bowels are in a sluggish condition. Smyrna figs, two or three before breakfast, are especially recommended for this purpose.
5. The last meal of the day should be light, if taken within less than five hours of bed-time ; but if detained out of bed until one is again hungry, it will be found beneficial to take a late lunch of some simple and nutritious food before retiring.
6. Avoid the use of highly seasoned foods. Condiments, good in quality and limited as to quantity, may be used to flavor foods, but not to such an extent as to irritate the mucous membrane of the delicate organs of digestion. Pickled peppers, pepper-sauce, red pepper, cloves, and other fiery preparations, should be carefully avoided by all persons desiring healthy stomachs.
7. Use good, ordinary common sense in the selection, preparation, and time and manner of taking food.

How we digest.—To make the process of digestion simple, let me say that it begins in the mouth and ends in the lungs. A man swallows a mouthful of bread. We follow it from his mouth down through the esophagus to his stomach. It now, by a peculiar motion of the muscles of the stomach is moved about in the stomach, and, as it touches here and there, gastric juice starts out, like sweat upon the forehead, and wets the bread.

After a couple of hours of revolving about within the

stomach, the bread is changed into something that looks like buttermilk. This is chyme. Now, the gate at the right end of the stomach opens and lets this chyme pass through the first part of the intestine. There two new liquids are poured in, one from the liver—the bile—the other from the pancreas—the pancreatic juice. These induce certain changes in the liquid bread which makes it resemble milk. Now it is known as chyle. Innumerable little mouths, which open within the intestine, suck up this milk or chyle, carrying it to a small canal—the thoracic duct which lies upon the backbone, and through it runs up to the upper part of the chest and is poured into a large vein just underneath the left collar bone. Through this vein it reaches the right side of the heart and is then forced into the lungs, where it comes in contact with the air. Now a wonderful change comes over it. This is produced by the addition of oxygen to the milk-like fluid. For a given quantity of this chyle a still larger quantity of oxygen is added, and the compound which comes of this union, between the bread and the oxygen is the nutriment which supplies the wants of the system. What takes place in the lungs is more important than anything that precedes it, in the process of digestion.

For example, a man may live upon fried salt pork, hot saleratus biscuit and strong green tea (I don't know of a worse dose), if he lives on the Western plains and breathes pure air, he will have a purer blood, a finer, healthier skin, and will be freer from humors than another man who lives upon the choicest grains and fruits, but who constantly breathes the air of a close, furnace-heated house. In other words, we may truly say, that, in considering the great function of digestion, the lungs really play a more important part than the stomach itself.

It is really vital that the first and the last step in digestion should be well done. First, chew well, and last, breath well. If these two duties are well performed, a substantial contribution will be made to our welfare.

That one kind of food is required* for thinking men, or

brain workers, and another kind for laboring men, or muscle workers, has been very aptly treated of in Dr. A. J. Bellow's "Philosophy of Eating," and in his "How not To Be Sick." In the latter he says : " Some articles of food may be wholesome to the laboring man, that are not wholesome to the thinking man. Cheese, for example, is very strengthening to bone and muscle, containing not only the concentrated nitrates of the milk, but also a large share of its phosphates ; but the phosphates are mostly insoluble, the soluble phosphates having gone off in the whey. Cheese, therefore, while it may be excellent food for the laboring man, and for children whose bones are feeble, is too indigestible, and contains too little food for the brain, to be very valuable to the sedentary thinking man, especially as it tends to constipation, containing as it does almost no waste material. But with this exception, all articles of common food, cooked so as to retain their natural elements, are useful to thinking men in proportion to the phosphates indicated in the tables, containing, as they all do in their natural condition, soluble as well as insoluble phosphorus.

Of the amount of soluble phosphorus in animal food we can judge, without analysis, by the degree of activity of the animal as only soluble phosphorus gives either activity of brain or muscle ; but, of the soluble phosphorus in vegetable food we have to judge by a different estimate. The phosphates of succulent vegetables and fruits, when nourishment is mostly in their juices, are of course soluble, and as their material is mostly woody fibre, and indigestible, they also furnish waste, which is very important to sedentary men ; the action of whose liver is sluggish, to eliminate effete matters, which, if retained in the system, produce inaction of the brain, and indeed of the whole system, causing jaundice, sleepiness, scurvy, and troublesome diseases of the skin. And fruits and succulent vegetables are needed therefore every day of the year, especially in summer, and in winter, by those who live in warm rooms, without much exercise.

Food best adapted to impart muscular power.

Next to cheese we have southern corn. This requires some addition of carbon—having but one part of nitrogenous to three of carbonaceous elements, whereas there is need of one to four in warm weather, and one to five in cold. It is, therefore, appropriately eaten with molasses, or meats, fat and lean, and even the negro diet of “hog and hominy” is not a bad one in cool weather.

Next come beans and peas—which also contain a large percentage of muscle making principles. These also require additional carbon, and should be eaten with butter or fat pork, and potatoes.

Lean flesh of meats.

Lean meats, or muscle of animals, contain about the same proportion of nitrates and phosphates as beans and peas, but contain no carbonates at all, or at least the gelatine in them, which is carbonaceous, is not digestible, but is used as waste, to keep the bowels in action; gelatine in meats answering the same purposes as woody fibre answers in vegetable food.

Fish.

Fish is more easily digested than red meat, but it gives less muscular power. No better idea of correct diet in health and disease can be given than by reprinting Dr. Thomas K. Chamber's “Principles of Diet in Health and Disease,” from the new edition of the *Encyclopædia Britannica*.

“The application of science to the regulation of the continuous demands of the body for nutriment, aims mainly at three objects: Health, pleasure and economy. They are rarely inconsistent with one another, but yet require separate consideration, as under varying circumstances each may claim the most prominent place in our thoughts.”

Influence of diet upon health.

The influence of diet upon the health of man begins at

the earliest stage of his life, indeed, is then greater than at any other period. It is varied by the several phases of internal growth and of external relations, and in old age is still important in prolonging existence, and rendering it agreeable and useful.

Diet in childhood and youth. At this stage of life the diet must obviously be the best, which is a transition from that of infancy to that of adult age. Growth is not completed, but yet entire surrender of every consideration to the claim of growth is not possible, nor indeed desirable. Moreover, that abundance of adipose tissue, or reserve new growth, which a baby can bear, is an impediment to the due education of the muscles of the boy or girl. The supply of nutriment needs not to be so continuous as before, but at the same time should be more frequent than for the adult. Up to at least fourteen or fifteen years of age the rule should be four meals a day, varied indeed, but nearly equal in nutritive power and in quantity, that is to say, all moderate, all sufficient. The maturity the body then reaches involves a hardening and enlargement of the bones and cartilages, and a strengthening of the digestive organs, which in healthy young persons enables us to dispense with some of the watchful care bestowed upon their diet. Three full meals a day are generally sufficient, and the requirements of mental training may be allowed to a certain extent to modify the attention to nutrition, which has hitherto been paramount. But it must not be forgotten that the changes in figure and in internal organs are not completed till several years have passed, and that they involve increased growth and demand full supplies. As less bulky food is used, care should be taken that it is sufficiently nutritious, and habits should be acquired which conduce to making the most of it for the maintenance of strength.

The nutritiousness of food depends on *digestibility* and *concentration*. Food is digestible when it yields readily its constituents to the fluids destined for their reduction to ab-

sorbable chyme. It is more or less concentrated, according as a given weight contains more or less matter capable of supporting life. The degree in which they possess these qualifications united constitutes the absolute nutritive value of alimentary matters.

The degree of cohesion in the viands influences digestibility. Tough articles incapable of being completely ground up by the teeth remain unused, while fluids and semi-fluids lead the van of digestibles. The tissues of young vegetables and young animals are, for this reason, more digestible than old specimens. It is desirable also that the *post-mortem* rigidity, which lasts several days in most instances, should have merged into softness before the meat is cooked, or should have been anticipated by cooking before the flesh is cold. In warm climates and exceptionally warm weather, the latter course is the preferable. The dietitian, especially when the feeding of the young is in question, will prefer those methods of culinary preparation which most break up the natural cohesion of the viands. And it may be noticed that the force of cohesion acts in all directions, and that it is no advantage for an article to be laterally friable if it remains stringy in a longitudinal direction.

Fat interposed between the component parts of food diminishes its digestibility. It is the interstitial fat, between the fasciculi of muscular fibre in beef, which renders it to young persons, and to dyspeptics, less digestible than mutton.

A temperature above that of the body retards digestion. Meat, which is digested by the gastric juice in the stomach, has time to cool before it gets there; but farinaceous food, which depends for its conversion into chyme on the salivary glands, suffers a serious loss if, by reason of being too hot, it can not avail itself of the saliva supplied by the mouth. It should also be born in mind that a temperature much above that of the body cracks the enamel of the teeth.

An over concentrated diet often induces costiveness. This should be counteracted by green vegetables and other

dilute appetizing dishes, and never by purgative drugs. The habit of taking a considerable quantity and variety of fresh green vegetables has the further advantage of preventing that tendency to minor developements of scurvy, which is not uncommonly found in youths nourished mainly on animal food. A softness or friability of the gums is one of the first signs of this. If the mouth bleeds after the application of a tooth brush, the use of fresh vegetables at every meal should be enforced.

The young are peculiarly liable to be affected by poisons conveyed in fluids. Their sensitive frames absorb quickly, and quickly turn to evil account such substances, even when diluted to an extent that makes them harmless to adults. The water therefore with which families, and still more with which schools are supplied, should be carefully subjected to analysis. Wherever a trace of lead is found, means should be adopted to remove the source of it; and organic products should have their origin clearly accounted for, and all possibility of sewage contamination excluded. These precautions are essential in spite of the grown up portion of the household having habitually used the water without injury,

Fresh milk has long had a popular reputation as occasionally conveying fever, and in some parts of Ireland the peasantry can hardly even be got to take it "raw." This is quite irrespective of the state of the cattle which furnish it; no cases of disease thus communicated have ever been traced home to sick cows. It is probably always due either to adulteration with dirty water, or to the vessels being washed in that dangerous medium, or to their being exposed to air loaded with elements of contagion.

Up to the period of full development the daily use of wine should be allowed only during illness, and the express attendance of a medical adviser. Its habitual consumption by healthy children hastens forward the crisis of puberty, checks growth, and habituates them to the artificial sensations induced by alcohol.

Diet for bodily labor.

It seems certain that the old theory of Liebig, which attributed the whole of the force exhibited in muscular movements to the oxidation of muscular tissue, is untenable. There is not enough of the material oxydised—that is to say, destroyed and carried away as urea and other nitrogenous excretions—to generate so much force, as measured by the method of Joule. On the other hand, Traube goes too far when he would make out that in the performance of muscular work the metamorphosis of the organized constituents of contractile tissue is not involved, and that non-nitrogenous substances alone are consumed. The prolonged feats of walking performed by the pedestrian, Weston, in 1876, vastly increased the amounts excreted of these elements of the urine which are derived from the oxidation of muscle and nerve. The urea formed by the destructive assimilation of contractile fibre, and the phosphates whose main source is nervous tissue, were each nearly doubled during and shortly after the extraordinary strain upon those parts of the body. As might be expected the machinery wears away quicker when it is harder worked, and requires to be repaired immediately by an enhanced quantity of new material, or it will be worn beyond the power of repair. The daily supply, therefore, of digestible nitrogenous food—meat *par excellence*—must be increased whenever the muscular exercise is increased. In making the recent extension of railways in Sicily, the progress was retarded by the slack work done by the Sicilian navvies, compared with that got through by the English gangs. The former took scarcely any meat, preferring to save the wages expended by their comrades in that way. The idea occurred to the contractor of paying the men partly in money and partly in meat; and the result was a marked increase in the amount of work executed, which was brought nearly up to the British average. A mixed diet, with an increase in the proportionate quantity of meat when extra corporeal exertion is required, is the wholesomest, as well as the most economical, for all sorts of manual laborers.

It is absolutely essential that the fleshy machinery for doing work should be continuously replaced by flesh-food as it becomes worn out. Nitrogenous aliment, after a few chemical changes, replaces the lost muscle which has passed away in the excretions, just as the engineer makes ore into steel and renews the corroded boiler-plate or thinned piston. Now, as the renewal of the plate or piston is a "stimulus" to the augmented performances of the engine, so meat is a "stimulus" to augmented muscular action. Taken in a digestible form during exertion, it allows the exertion to be continued longer, with greater ease and less consequent exhaustion. According to the testimony of soldiers experimentally put through forced marches of twenty miles a day, with loads of half a hundredweight each, "meat extract" bears away the palm from the other reputed stimulants commonly compared with it—viz., rum and coffee. "It does not put a spirit into you for a few miles only, but has a lasting effect. If I were ordered for continuous marching, and had my choice, I would certainly take the "meat extract," said an unprejudiced sergeant to Dr. Parkus, who was the conductor of the experiments alluded to.

When the continuous repair of the muscular machinery is fully secured, the production of heat and force is most provided for by vegetable aliment, by reason of the large proportion of carbon which it contains. In assigning their physiological functions, to the several sorts of food, nearly all the business of begetting active force should apparently be ascribed to the solid hydro-carbons, starch and fat, by their conversion into carbonic acid. It is not necessary to be acquainted with every step of the process—which in the body we confessedly are not—to appreciate the argument. It is clearly important that these elements of diet should be furnished in a sufficient quantity, and in a digestible form. In additions to diet made in consequence of additional bodily work, not only should the stimulus of animal food be attended to, but the bulk of the starch and fat in the rations should be augmented even in larger proportion, for these aliments are

the most direct contributors of force. This is well illustrated by a remarkable feat performed on the Great Western Railway, in the summer of 1872. It was necessary to shift the rails from the broad to the narrow guage on upward of 500 miles of permanent way within a fortnight. The task was enormous, for the Great Western is one of the few English lines, whose rails are held down by bolts screwed into nuts. All these had to be unscrewed and replaced, after removing the heavy rail two feet. About 3000 men were employed, working double time, sometimes from 4 o'clock in the morning till 9 at night; and, without one being sick or drunk, they accomplished the work in the prescribed time. The scheme for generating muscular power was this: The men were hutted along the line, so as not to waste their strength coming and going, and they brought with them bacon, bread, cheese, cocoa, etc., to provide their usual meals at usual times. But they had no beer or alcohol in any form. A pound and a half of oatmeal and half a pound of sugar was allowed extra to each man daily, and for every gang of twenty-one a cook was provided. The first thing done in the morning was to breakfast; and then the cook and his caldron started along the line till water was found convenient, a fire-place of stone was built and the pot boiled. Oatmeal was then sprinkled into it, with sugar, and thoroughly well boiled till their gruel was made. As soon as the shout for "drink" was heard, buckets were filled and carried round, with small pannikins to convey the liquid to the panting mouths. The men liked it exceedingly, and learned by experience the importance of having it well cooked.

The incident may remind the reader of the classical medicine of Hippocrates, who considers the culinary preparation of oatmeal plisan so important, that, in a short treatise "On the Treatment of Acute Diseases," he devotes to it the only cooking recipe he has inserted in his works. He describes how it is to be boiled till it can swell no longer (so that it will swell no more in the stomach), how it is to be

settled and strained through a coarse colander. He prescribes it, indeed, for sick people, but he would have been the first to agree with our advanced physiologists in the opinion that over-strained muscular effort produce the same effect as continued fever, its chief dangers lying in rise of temperature and arrested cutaneous action, and that its true antagonist is nutriment capable of rapid absorption, dissolved in that most essential nutriment, water.

Training for athletic sports is based on the principles above enunciated. The usual time allotted to it is six weeks, and the objects to be attained in this period may be described as—

1. The removal of superfluous fat and water.
2. The increase of contractile power in the muscles.
3. Increased endurance.
4. "Wind," that is to say, a power of breathing and procirculating the blood steadily, in spite of exertion.

The first is aimed at by considerably adding to the daily amount of nitrogenous, and by diminishing farinaceous and liquid food, and providing that it should be so consumed as to be fully digested. The second and third are secured by gradually increasing the demands made upon the muscles, till they have learned to exert at will all the powers of which they are capable, and for as long a period as the natural structure of the individual frame permits. "Wind" is improved by choosing as part of the training and exercise, such as running, which can be sustained only when the respiratory and circulating organs do their duty fairly.

As an example, the Oxford system of training for the summer boat-races may be cited. It may be considered a typical regimen for fully developing a young man's corporeal powers to fulfill the demands of an extraordinary exertion a standard which may be modified according to the circumstances for which the training is required. It is as follows :

A DAY'S TRAINING.

Rise about 7 A. M.

Exercise, A short walk or run. Not compulsory.

Breakfast at 8:30 . { Of tea. As little as possible.
 { Meat, beef or mutton. Underdone.[ble.
 { Bread or dry toast. Crust only recommended.

Exercise in forenoon, None.

Dinner at 2 P.M. { Meat, much the same
 { as for breakfast.
 { Bread. Crust only recommended.
 { Vegetables, none.
 { Beer, one pint. Not adhered to.

Exercise, { About 5 o'clock start for the river, and
 { row twice over the course, the speed increasing with the strength of the crew.

Supper at 8:30 or 9. { Bread, or perhaps a little jelly or water-cresses.

Bed about 10.

The Cambridge system differs very slightly, and in neither is any exaggerated severity of discipline enforced, while some latitude is permitted to peculiarities and a wish for variety, and plenty of time is left for business and social intercourse. Other plans are objectionable, from involving, without any corresponding advantage, a complete departure from the usual habits of the educated classes. For instance, according to Clasper, dinner is to be at noon, with only a light tea afterward, and no supper. Then a country walk of four or five miles is to be taken before breakfast, and two hours' row afterward, and another hard row between dinner and tea. "Stonehenge," again, requires the time between breakfast and dinner to be spent entirely on billiards, skittles, quoits, rowing, and running, in spite of another hour's rowing being prescribed at 6 P. M. He also requires the aspirant for athletic honors to sleep ten and eleven hours. Only professionals will carry out such rules, and even they do not either benefit their health or lengthen their lives by the sacrifice ;

for it is notorious that "over-training" leads to a condition of system in which the sufferers describe themselves as "fallen to pieces." The most peculiar symptom is sudden loss of voluntary power after exertion. It is sometimes called "fainting," but there is no loss of sense, and it is quickly relieved by liquid food. It is to the pathologist a timely warning of that consequence of over-strained muscle, which constitutes paralysis scriptorum, turner's palsy, and blacksmith's palsy, and which results in fatty degeneration of the red muscular fibre. To get and to keep its health, a muscle needs a constant alternation of active contraction and rest, and an enforced protraction of either one or the other leads to the loss of vital properties. The limbs of an Indian fakir, voluntarily held in a strained posture, or those of a bed-ridden invalid, are equally apt to become useless. Over-trained persons are also liable to a langour and apparent weakness, which is found, on examination, to depend on an excessive secretion of Urea by the kidneys.

Such are not the results, however, of the training adopted at the universities, by which it would appear that the constitution is strengthened, intellect sharpened and life lengthened. Dr. John Morgan (University Oars, 1873,) has collected statistics of the subsequent health of those who have rowed in the University races since 1829, and he finds that, whereas, at twenty years of age, according to Farr's life tables, average expectation of survivor is forty years, for these oarsmen, it is forty-two years. Moreover, in the cases of death, inquiry into its causes exhibits evidence of good constitutions rather than the contrary, the causes consisting largely of fevers and accidents, to which the vigorous and active are more exposed than the sick. And it is not at the expense of the mind that the body is cultivated, for this roll of athletes is adorned with the names of bishops, poets, Queen's counsels, etc.

Training greatly increases the vital capacity of the chest, so that much more air can be blown in and out of the lungs, and with greater force than previously. And this vital ca-

capacity endures longer than the other improvements. It is evidence of a permanent elasticity of the pulmonary tissue, and an efficient protection against asthma, emphysema, and other degenerations of the organs of breathing.

Indigestion, sleeplessness, nervous indecision, palpitation of the heart, and irregularity of the bowels, disappear under training; but if they exist, the regime should be entered on with more than usual caution.

An important modification of training is that which contemplates the reduction of corpulence which has increased to the extent of interfering with comfort, and preventing active exercise. If an exhausting amount of muscular effort is enforced, the digestion of meat is interfered with, while at the same time there still goes on the absorption of such fat as is unavoidably present in the victuals, so that the muscles and nerves lose strength while the adipose tissue grows. Besides this, if by violent means, the weight is worked down, then to keep it down, those violent means must be persisted in; and if they be neglected for more interesting occupations, the burden rapidly increases to a greater degree than ever. Many uncomfortably obese persons are very active in mind and body, and could not add to their muscular exercise without risk of harm. Regimen, then is more essentially important to them than to other trainers, and they will probably be more induced to attend to it if they understand the principles on which it is based. This is simply to exclude from the bill of fare, all those articles which contain fat, or which, by the chemical actions of the digestive viscera may be converted into fat.

For the reduction of corpulence, the following rules may be observed for a three weeks course. Rise at 7, rub the body well with horse-hair gloves, have a cold bath, and bathe a short turn in the open air. Breakfast (alone) at 8 or 8-30, on the lean of beef or mutton (cutting off the fat and skin,) dry toast, biscuit or oat cake, a tumbler of claret and water, or tea without milk or sugar, or made in the Russian way with a slice of lemon. Lunch at one on bread or biscuit,

Dutch cheese, salad, water cresses or roasted apples, hung beef or anchovies, or red herring, or olives, and similar relishes. After eating, drink claret and water, or unsweetened lemonade, or plain water in moderation. Dine at any convenient hour, avoid soup, fish or pastry, but eat plain meat of any sort except pork, rejecting the fat and skin. Spinach, haricots, or any other green vegetable may be taken, but no potatoes, made dishes or sweets. A jelly or a lemon water ice, or a roast apple must suffice in their place. Take claret and water at dinner, and one glass of sherry or madeira afterward.

Between meals, as a rule, experience must always be taken to the extent of inducing perspiration. Running, when practicable, is the best form in which to take it. Seven or eight pounds is as much as it is prudent to lose during the three weeks. If this loss is arrived at sooner, or indeed later, the severe parts of the treatment may be gradually omitted; but it is strongly recommended to modify the general habits in accordance with the principle of taking as small a quantity as possible of fat and sugar, or of substances which form fat and sugar, and sustaining the respiratory function. By this means the weight may be gradually reduced, for a few months with safety.

Small quantities of diluted alcoholic liquids taken with meals slightly increase the activity of the renewal of the nitrogenous tissues, mainly muscle; that is to say, there is a more rapid reconstruction of those parts, as is shown by the augmented formation of urea and the sharpened appetite. Life is fuller and more complete, old flesh is removed, and food appropriated as new flesh, somewhat more quickly than when no alcohol is ingested. There appears to be a temporary rise in the digestive powers of the stomach, which is probably the initiative act. The nerve-functions are blunted, and a lessened excretion of phosphorus exhibits a temporary check in the wear and renewal of the nerve-tissue.

The "vital capacity" of the lungs, as indicated by the

spirometer, is reduced, showing a diminished oxidation of the blood.

The effect on a healthy man of taking with a meal such a quantity of fermented liquor as puts him at ease with himself and the world around, without untoward exhilaration, is to arrest the wear of the nervous system, especially that part employed in emotion and sensation. Just as often, then, as the zest for food is raised to its normal standard by a little wine or beer with a meal, the moderate consumer is as much really better as he feels the better for it. Where the food is as keenly enjoyed without it, the consumption of a stimulant is useless. But alcohol is not a source of force, and its direct action is an arrest of vitality.

Diet for mental work.

An expression of Buchner's "Ohne Phosphor kein Gedanke," "Kraft und Stoff," section 122. "No thinking without phosphorus" has gained an unhappy notoriety. Strictly speaking, it is a groundless assumption, for we cannot say that intellectual being may not exist joined to any form of matter, or quite independent of matter. We certainly do not know enough of the subject to lay down such a negative statement. And if it be held to mean that the amount of phosphorus passing through the body bears a proportion to the intensity of thought, it is simply a misstatement. A captive lion, tiger, leopard, or hare assimilates and parts with a greater amount of phosphorus than a hard thinking man, while a beaver, noted for its power of contrivance, excretes so little phosphorus that chemical analysis cannot find it in the excreta. All that the physiologist is justified in asserting is that, for the mind to energize in a living body, that body must be kept living up to a certain standard, and that for the continuous renewal of life a supply of phosphatic salts is required. The same may be said with equal justice of water, fat, nitrogen, chloride of sodium, oxygen, etc. The phosphates are wanted indeed, but wanted by pinches, whereas water is required by pailfuls. A few

days without water, or a few minutes without oxygen, will terminate the train of consciousness. The practical points taught us by physiology are that, for the integrity of thought, integrity of the nervous tissue is requisite, and for the integrity of the nervous tissue a due quantity of such food as contains digestible phosphatic salts.

The most perfect regimen for healthy exercise of thought is such as would be advised for a growing boy—viz., frequent small supplies of easily soluble mixed food, so as to furnish the greatest quantity of nutriment without overloading the stomach, or running the risk of generating morbid half-assimilated products. For it is essential to the intellectual direction of the nervous system that it should not be oppressed by physical impediments. The presence in the stomach or blood, of imperfectly assimilated nutriment, impedes its functions, in close proportion to their amount, so that not only the constitution, but the mode of administering food must come into the calculation. *Repletus venter non studit libenter*, is an old proverb, the application of which saves many a brain, and many a stomach from being worked against the grain. Rest from brain work for 20 minutes before meals, entire abstinence from it during meals, and rest again till the weight has passed from the stomach, are essential to the reconciliation of physical exertion with bodily health.

The physiology of the action of alcohol has a very important bearing on the physical management of the mental functions. Alcohol has the power of curbing, arresting, and suspending all the manifestations of the nervous system, so that we feel its influence on our thoughts sooner than on any other part of the system. Sometimes it brings them more completely under our command, controls and steadies them; more often it confuses or disconnects them and then breaks off our power over them altogether. When a man has tired himself by intellectual exertion, a moderate quantity of alcoholic stimulant taken with food acts as an anæsthetic, stays the wear of the system which is going on, and allows

the nerve-force to be turned to the due digestion of the meal. But it must be followed by rest from toil, and is, in essence a part of the same treatment which includes rest—it is artificial rest. To continue to labor and at the same time to take an anæsthetic is a physiological inconsistency. The drug merely blunts the useful feeling of weariness and prevents it from acting as a warning. There is no habit more fatal to a literary man than that of taking stimulants between meals; the vital powers go on wearing out more and more, without their cry for help being perceived, and in the end break down irrevocably.

As to quantity, the appetite for solid food is the safest guide. If a better dinner or supper is eaten when it is accompanied by a certain amount of fermented liquor, that is the amount most suitable, if a worse, then an excess is committed, however little be taken.

The aim of the diet should be (to quote the words of John Milton) “to preserve the body’s health and hardness, to render lightsome, clear, and not lumpish obedience to the mind, to the cause of religion and our country’s liberty, when it shall require from hearts in sound bodies to stand and cover their stations.”

It is especially when the mind of genius is overshadowed by the dark clouds of threatened insanity, of hypochondriasis, or of hysteria, that a rational mode of life preserves it. Nothing but daily exercise, temperate meals, and a punctual observance of regular hours of rest and study, could have kept burning the flickering reason in poor Cowper.

As regards the proper quantity of alcohol that may be used, the two following questions naturally occur: How is a man to know when he has had enough? and what are the signs of too much? The ancients used to wear dark-red or purple engraved gems, which they considered preservatives against excess, and called them “sober-stones,” “amethysts.” The name is now limited to the violet rock-crystal, but in early times it was applied to several other stones, cut in intaglio, and worn on the fingers at festive gatherings. So long as

the wearer could decipher the minute works of art they bore, he had not reached excess. A more delicate test still, is the appreciation of temperature by the skin; if a draught does not chill, if a hot room fails to produce the usual discomfort, the wise man knows he has exceeded, and must stop at once. In short, the safest rule is that, when there is a consciousness of any physical effect at all beyond that of satisfaction at the relief of bodily weariness—such a satisfaction as is felt on taking a good meal by a vigorous person—then the limits of moderation have been attained. On ordinary occasions of daily life, and “for the stomach’s sake,” no more should be taken. Each fresh drop is a step downward to the evil results of alcohol.

Diet of old age.

It is a remark extant from the rough times, when famine was more frequent than now, that the older a human being is, the better deficiency of food is borne. Old men suffer least from abstinence (Hippocrates Aphorism, XIII.) and benefit therefore most from temperance in eating. Everybody who has passed the age of fifty, or thereabouts, with a fairly unimpaired constitution, will act wisely in diminishing his daily quantity of solid food.

There is less demand for the materials of growth, and consequently animal food should bear a smaller proportion than heretofore to vegetable, and it is mainly in that ingredient of the diet, that reduction should be effected. Neglect of this rule in declining years, is often punished by gout—a disease attributable to nitrogenous aliment, and for this reason common to elderly men.

In the autumn of life, the advantages derived from fermented liquor, are more advantageous, and the injuries it can inflict less injurious to the body than in youth. The effect of alcohol is to check the activity of destructive assimilation, to arrest that rapid flux of the substance of the frame which, in healthy youth, can hardly be excessive, but which, in old age, exhausts the vital force.

Loss of appetite is a frequent and a serious symptom in old age. It usually arises from deficient formation of gastric juice, which in common with other secretions diminishes with years. It is best treated physiologically rather than by drugs.

Diet in sickness.

In all that has gone before, health has been presupposed. The modifications necessitated by sickness are of three kinds.

1. The avoidance of such articles of consumption as would increase the disease under special circumstances, although ordinarily wholesome.

2. The maintainance of the functions or parts of the frame which remain normal.

3. The administration, for a special curative purpose of peculiar food, which would not be recommended for general use.

In all *fevers* which are classed together as being apparently due to a poison multiplying itself in the blood, the art of diet consists in giving an almost continuous supply of liquid nutriment, holding very soluble aliments in a diluted form. There is nothing so digestible as water, and we take advantage of this high digestibility, to get whatever it can dissolve digested along with it. For the first three or four days, patients previously strong, should have only farinaceous food well boiled and cooled to the temperature of the body.

Evidence has already been quoted of the power which oatmeal gruel possesses of sustaining force under the trying circumstances of excessive toil. Now fever closely resembles muscular effort in its arrest of the digestive functions, at the same moment that it makes an urgent demand for nutriment. With ultra-Egyptian rigor, while straw is withheld "the tale of the bricks is doubled," and we know by the quantity of urea and phosphates in the urine, and by the fecal excretions that the muscles and nerves are melting away as fast as if he were scaling the Alps with nothing to eat. It is quite reasonable to transfer the experiences

derived from health, to sickness, and to feel satisfied that we are not wasting precious opportunities when we are giving fever patients such a time-honored diet as oat-meal gruel, care being taken that it is thoroughly well boiled. After three days the tissues are beginning to suffer, and it is advisable to add chicken broth, meat jelly, and strong soup. Let that be supplied which emaciation shows to be passing away—nitrogenous tissue.

The administration of alcohol is to be regulated partly by the temperature and partly by the condition of the nervous system. Usually the heat of the blood (as taken at the axilla) is above 103° , and always, if it be above 105° , there is a necessity for it. Again, if there is great prostration of strength, or tremor of the hands, or quivering in the voice and respiration, if there is low muttering delirium when the patient is left quiet, it is required.

Green sickness or anaemia, is characterized by the rapid disappearance of red particles which float in the blood. To what a strange extent this goes, may be seen by looking at the inside of the lips, which naturally hold such a quantity of the fluid as to be quite scarlet, but, which now are pale like those of a corpse. It is calculated that the loss of material in marked cases of green sickness may amount to three pounds of this important constituent of the blood, yet it is capable of complete renewal by diet. If by diet or remedies, notably iron, the appetite can be so regulated as to enjoy meat in excess of the immediate wants of the body; that meat is converted into hæmatosine, and the healthy hue returns to the cheeks as quickly as it left it.

Acute rheumatism and acute gout are best treated on an opposite principle. A nutrient nitrogenous diet, which the patient assimilates only too readily, retards recovery, and will even bring on a relapse during convalescence. If meat in any form, solid or liquid, be eaten, it seems to turn to acid, which is already in excess in the blood. The power of fully converting it into living flesh is wanting, and until this power is regained, a semi-conversion into an organic acid

takes place. The redder and more muscular the meat is, the more it disagrees.

Chronic gout is indubitably due to good cheer indulged in either by the sufferer or his ancestors. When a man, day after day, swallows more nitrogenous food than is wanted for the repair of his tissues, the following results may be expected, with variations dependent upon his original constitution: If the digestive solvents are weak and scanty, the excess passes through the canal in an undigested state, and is partially decomposed there. Thereon ensue all sorts of abdominal derangements, which, however, have the advantage of getting rid of the offending matters. If, on the other hand, the stomach secretes vigorously on being stimulated, then, indeed, the excess is digested and absorbed, and is subject to the future changes consequent on assimilation.

An active out-of-door life neutralizes this in some measure by augmenting oxidation; much of the albumen goes to form glycogen, and acts as a fuel for the maintenance of muscular force. The balance is wasted in an unexplained way, and does not necessarily injure a hardy frame. The violent muscular exertion and high training needful for oxidation being inconsistent with the habits of intellectual society, a man in the prime of life who puts too much meat into a good stomach habitually retains in his blood an excess of uric acid, into which the nitrogenous waste converts itself. Uric acid in the blood has been distinctly traced as the essence of gout. Perhaps this imaginary first offender develops the full consequences; and that is the best thing that can happen, inducing greater carefulness in future.

These views can suggest but one line of preventive treatment: The children of gouty families should be brought up to a life of strict abstemiousness and muscular activity. From the earliest years vegetables and "meagre" soups should form a considerable portion of their dietary. Gouty adults require meat but once in twenty-four hours. The bill of fare should be varied from day to day, but as simple as possible at each meal. Rich sauces are to be eschewed,

and a lemon, an infusion of herbs and pepper, bread sauce, or a course of vegetables, adapted in their place.

Sugar at the end of meals, generates an excess of organic acid, and it is to be avoided. If cheese is eaten, it should be new, and is best toasted and creamed.

Dilute alkaline waters containing soda, such as Apollinaris or the weaker Vichy, are a rational drink during meals; but it is probably best to keep to pure water. Those who live idle lives require no alcohol and it should not be an habitual accompaniment to meals.

Red gravel is evidence of a constitution so closely allied to gout, that nothing need be said further about its appropriate regimen.

In *Bright's disease* of the kidneys, in *contracted liver*, and, in short, in all degenerative lesions, alcohol has a baneful influence. Its actions upon the tissues is directly the same as theirs. Moreover, if we agree with its latest expositor, Dr. Sibson, that *Bright's Disease* is closely associated with increased arterial tension, alcohol, (whose effect is also to increase tension) must be peculiarly poisonous.

For the cure of these diseases independent of the nutrition of the rest of the body, a milk diet has been proposed, and it seems to offer a fair prospect, if the patients can be persuaded to persist in it. How safely a milk diet may be adopted in middle life is shown by the example of Dr. Cheynes, a Bath physician of the last century, who, at about 55, restricted himself entirely to milk and biscuits, and yet was able to fulfill the duties of his laborious profession. He took at first, of the former six pints, of the latter twelve ounces; but he shortly diminished the quantity to half, and, after sixteen years experience, found it fully sufficient, and indeed capable of further reduction in quantity.

Weak and slow digestion is a condition which enforces an especial care for meat and drink. The cause of the imperfection lies in a deficiency in the supply of nerve-power to the stomach, so that it both secretes its solvent fluid and also rotates its contents too slowly; and the more it is loaded the

slower it goes. Of the medicinal means of curing such a state, this is not the place to speak; but none of them will avail without the aid of a rational dietary. Time must be given to the oppressed organ wherein to empty itself of every complete meal, and such a period of rest given as will allow of the recovery of force; or, if the meals are frequent, they must be very sparing. The observations of Busch (Virchow's "Archiv," xiv.) show that a period of five hours elapses in the healthy subject before a fully filled stomach can empty itself, and in the dyspeptic the process is still longer. Whenever, therefore, the organ is loaded as healthy people rightly load it, a man should allow at least seven or eight hours to elapse before sitting down to another meal, and he must never eat till the need for food is announced by appetite. Perhaps a more generally applicable and easier-obeyed law is not to make full meals at all, but to stop short at the feeling of repletion, and, when that has gone off, again to take in the supply allowed by circumstances. Three moderate meals are usually sufficient to keep up the strength.

Meat should be once cooked. Mutton, feathered fowl, venison, lamb, and beef are digestible in the order they here are placed in. The more difficult dishes should have the longest time allowed to them. Of the farinaceous articles of diet, bread and biscuits are those most easily penetrated by the gastric juices, and all their preparations are safe. The best bread is the "aerated," which is free from decomposing yeast. Macaroni is good if soaked till quite macerated. Pastry is difficult of solution. Vegetables are very necessary; cauliflowers, Jerusalem artichokes, beet-root, French beans, soft peas, stewed celery, turnip tops, spinach, are the most readily disposed of.

When the usual mixture of meat and vegetables is found to induce flatulence, it is a good expedient to eat vegetables only at one meal and meat and bread only at another. The principle on which this plan is based is that starchy food is dissolved mainly by the alkaline saliva, whereas meat is dis-

solved by the acid gastric juice. In a vigorous person both are copious enough to render immaterial their mutual neutralization; but when they are scanty, their separate employment is a physiological economy.

Consumption is a disease whose treatment is almost wholly dietetic. The children of a mother whose pedigree exhibits proof of a consumptive tendency, may with propriety be put to a healthy wet-nurse immediately on birth, and, on being weaned, be fed on the milk of a healthy cow. The milk should be boiled and then cooled down to tepidity. A small teaspoonful of "saccharated solution of lime" may be advantageously added to each quart of milk when the coming of teeth require the elements of their nutrition to be added to the diet. The rules for the healthy management of the young (given under the chapter on "management of children in Health and Sickness,") should be adhered to with unusual strictness, and any departure from them should be made only to provide for some peculiar necessity of the case according to medical advice.

In cases of consumption it is difficult to say that drugs are useless, but certainly those that come nearest to aliments have most evidence in their favor, such as iron, cod-liver oil, and the phosphates of lime. Their effect on the appetite must be sedulously watched, and the end must not be sacrificed to the means; that is to say, if they spoil the appetite they must be left off. The reason for administering oil is to afford an easily assimilated basis of renewed organic growth, to take the place of the abnormal tendency to form tubercular matter. If anything prevents its easy assimilation it is obviously useless. The use of climate in the treatment of phthisis may be tested by its dietetic action; if it improves the appetite, it is doing good; if it injures the appetite, it is doing harm.

In *chronic jaundice* the function of the liver is best restored by the free use of green vegetables at all meals.

Diabetes, when it has once assumed a chronic form, is never really cured, but life may be much prolonged by the

employment of a diet from which sugar and starch are excluded as far as practicable, and the patient nourished on animal food. The best fare for diabetic patients is that given by Prof. Bouchardat in his work "Du Diabete Sucree," Paris, 1852.

In *functional nervous diseases*, such as hysteria and hypochondriasis, the appetite, muscular elasticity, and mental powers will often be observed to be deficient in the early part of the day, and to recover their tone in the evening. At this latter time, therefore, it is advisable to make the principal meal.

Scurvy is a notable example of a disease of which more than any other, the prevention depends on the adoption of a suitable diet. Its symptoms so far resemble those of general starvation, that from the earliest time of its appearance in history, it has been suspected that it is due to a dietary defective in some necessary ingredient; and practical observation soon showed that this was fresh vegetables. It was found on every long voyage that the crew suffered from scurvy in proportion to the length of time they were restricted to dry food, and that they recovered rapidly as soon as they got access to a supply of succulent plants. This requisite for health is obviously the most difficult of all things to procure aboard ship, and efforts were made to find a substitute capable of marine transport. From the time of Hawkins (1593) downward the opinion has been expressed, by all the most intelligent travellers, that a substitute is to be found in the juice of fruits of the orange tribe, such as oranges, lemons, etc. But in its natural state this is expensive and troublesome to carry, so that skippers and owners for a couple of centuries found it expedient to be skeptical.

The pictures of scurvy as it appeared during the eighteenth century are horrible in the extreme. But the statute of 1795, passed through the exertions Captain Cook and Sir Gilbert Blane, has enforced the carrying of lime juice. This invaluable preventive has shown its influence all the more decidedly by the disease still appearing occasionally under

strong promoting circumstances, and to a certain extent in spite of the antidote ; but it is so modified as to be usually more of the nature of a warning or demonstration than of a serious invasion. Some, indeed, have questioned and even denied altogether the blessings derived from the enforced use of lime-juice. But they make a very scanty show when weighed with those whom they undertake to oppose ; and it is superfluous here to enter the arguments and results of observation constituting the ponderous "Report of the Committee appointed by the Lords Commissioners of the Admiralty to inquire into the Causes of the Outbreak of Scurvy in the Recent Arctic Expedition, etc., and presented to both Houses of Parliament, May 7, 1877," which seems to settle for ever the preventive powers against scurvy of the use of lime-juice.

The committee alluded to was appointed in consequence of one of those exceptional outbreaks of scurvy induced by exceptional circumstances. The ships sent in the exploring expedition of 1875 were amply provided with lime-juice, and with printed expositions of its value. During the voyage out and in the long inaction of the winter, the men's health was so well preserved by general attention to hygiene that no cases of even mild scurvy were detected ; the pallor and languor and depression of spirits of some among the sailors were attributed to the want of sunlight for 142 days, and it was expected that a few days' sledge traveling in the open air would reinvigorate them. There was plenty of lime-juice aboard ; but it seems that it is not the custom to add to the weight of the provisions which polar sledging-parties have to propel, by including the preservative among them. Sir George Nares, the commander of the expedition, cites the names of 10 admirals, 10 doctors, and 15 captains, who have conducted land explorations in this fashion without it ; and they returned unscathed to any serious extent. But on this recent occasion the crews seem to have been peculiarly predisposed to illnesses of scorbutic nature by the more than ordinary scarcity of fresh meat in their dietary, arising

out of the deficiency of game in the extremely high latitude where they wintered. With few exceptions the whole of the crews of the *Alert* and the *Discovery* were employed in sledging, and the consequence was, that of the 122 officers and men 59 were more or less incapacitated by scurvy, and four died.

The real reason for not carrying lime-juice in such expeditions is its cumbersomeness. Including bottles, though in truth they are not wanted in a hard frost, it may be said that one pound a week for each man would have to be added to the baggage.

In merchant-ships lime-juice is used during polar service in a ration of an ounce a day. See "Report" above cited. But the opinions of the officers examined seem to agree that the quantity is not sufficient, and advise half as much again, or more. A serious item, no doubt. And with a view of remedying the inconvenience, medical men have long sought to discover to what constituent of the complicated mixture afforded by Nature it is that it owes its efficacy. In a contribution to the *Medico-Chirurgical Review* for 1848, Dr. Parkes examined exhaustively the evidence concerning the various deficiencies in ship-food as compared with fresh food, which might be filled up by one or other of the components of lime-juice; and by exclusion he was led to the conclusion that the cause of scurvy is to be found in deficiency of salts whose acids form carbonates in the system viz., citric, tartaric, acetic, lactic, and malic acids.

Though not so good as when in their natural form, because less digestible and pleasant, yet a supply of citrates, tartrates, lactates, and malates of potash might be packed in small bulk, and, under circumstances where weight is of importance, might take the place of lime-juice. Or bolozenges might be made of lime-juice freed from its aqueous portion, and preserved with sugar. Three or four of these a day might be easily swallowed without stopping work.

Before leaving the subject of maritime scurvy, it may be

suggested how useful it would be if those who sail in desolate regions were to carry seeds of antiscorbutic vegetables, which strewed broadcast in uninhabited places would form a flora capable of saving the lives of many a wrecked or weather bound crew.

Scurvy as landsmen see it in time of peace, amounts to little more than *anæmia*, with a soft and bleeding condition of the gums; but it indicates the use of exactly the same preventives and remedies as the more severe complaint.

Starvation is a disease which it is a platitude to say may be prevented by diet; nevertheless there connected with it a few peculiarities of scientific and practical interest which may not be unworthy of notice. "*Quedia*," as it is called in the nomenclature of diseases by the London College of Physicians is of two kinds, arising from *want of food* and from *want of water*.

When entirely deprived of nutriment the human body is capable of supporting life under ordinary circumstances for little more than a week. In the spring of 1869 this was tried in the person of a "fasting girl" in South Wales.

The parents made a show of the child, decking her out like a bride on a bed and asserting that she had eaten no food for two years. Some reckless enthusiasts for truth set four trustworthy hospital nurses to watch her; the Celtic obstinacy of the parents was roused, and in defence of their imposture they allowed death to take place in eight days. Their trial and conviction for manslaughter may be found in the daily periodicals of the date; but, strange to say, the experimental physiologists and nurses escaped scot-free. There is no doubt that in this instance the unnatural quietude, the grave-like silence, and the dim religious light in which the victim was kept, contributed to defer death.

One thing which remarkably prolongs life is a supply of water. Dogs furnished with as much as they wish to drink were found by M. Chosat, to live three times as long as those, who were deprived of solids and liquids at the same time. Even wetting the skin with sea water has been found

useful by shipwrecked sailors. Four men and a boy of 14 who got shut in Tynewydd Mine, near Perth, in North Wales, in the winter of 1876—'77, for ten days without food, were not only alive when released, but several of them were able to walk, and all subsequently recovered. The thorough saturation of the narrow space with aqueous vapor, and the presence of drain-water in the cutting, were probably their chief preservatives, assisted by the high, even temperature always found in the deeper headings of coal mines, and by the enormous compression of the confined air. This, doubtless, prevented evaporation, and retarded vital processes dependent upon oxidation. The accumulation of carbonic acid in the breathed air would also have a similar arrestive power over destructive assimilation. These prisoners do not seem to have felt any of the severer pangs of hunger, for they were not tempted to eat their candles. With the instinctive feeling that darkness adds a horror to death, they preferred to use them for light.

It is a paradoxical fact that the supply of the stomach even from the substance of the starving individual's body should tend to prolong life. In April, 1874, a case was recorded of exposure in an open boat for thirty-two days of three men and two boys, with only ten day's provisions, exclusive of old boots and jelly-fish. They had a fight in their delirium, and one was severely wounded. As the blood gushed he lapped it up: and instead of suffering the fatal weakness which might have been expected from the hemorrhage, he seems to have done well. Experiments have been performed by a French physiologist, M. Anselmier ("Archives Gen. de Medecine," 1860, vol. i., page 169), with the object of trying to preserve the lives of dogs by what he calls "artificial autophagy." He fed them on the blood taken from their own veins daily, depriving them of all other food, and he found that the fatal cooling incident to starvation was thus postponed and existence prolonged. Life lasted till the emaciation had proceeded to six-tenths of the animal's weight, as in Chosat's experiments, extending

to the fourteenth day, instead of ending on the tenth day, as was the case with other dogs which were not bled.

These instances of the application of the art of dietetics to the treatment of disease are sufficient to show the principles which should be kept in sight. The pathology of the ailment should be considered first, then its bearing upon the digestive organs, and lastly the bearing of the digestive organs upon it.

And before quitting the subject of health as effected by diet, a common sense hint may be given to those, who are in good sanitary condition, that they cannot do better than to let well alone. The most trustworthy security for future health is present health, and there is some risk of over-throwing nature's work by over caring.

Pleasure as an object of dietetics.

The social importance of gratifying the palate has certainly never been denied in practice by any of the human race. Feasting has been adopted from earliest times, as the most natural expression of joy, and the readiest means of creating joy. If ascetics have seemed to put the pleasure away from them, they have done so in the hope of purchasing, by their sacrifice, something greater and nobler, and have thus tacitly conceded, if not exaggerated its real value. Experience shows that its indulgence unregulated by the laws which govern our progress in civilization leads to unutterable degradation and meanness, brutalizes the mind, and deadens its perception of the repulsiveness of vice and crime. But that is no cause why this powerful motive power governed by right reason should not be made subservient to the highest purposes.

The times of meals must be regulated with a regard to the disposal of the remainder of the day, whether that depends on choice or on necessity. Violent exertion of either mind or body retards digestion; and therefore when this is practiced food is not called for so soon as on a day of rest. The heaviest meal should be postponed until the day's work is

done; It is then that the social home joys give the requisite repose to the body and mind.

Light eaters may dine as late as they please, but those of larger appetite should lengthen the interval between their repast and bed-time. After the night's sleep and the long fast which has emptied the digestive canal of its nutritive contents, a breakfast should be taken before any of the real business of life be begun. It is no proof of health or vigor to forego it without inconvenience; but it is a proof of health and vigor to be able to lay in then, a solid foundation for the day's labor. Not less than four, and not more than six hours should elapse before the store is again replenished. A light farinaceous lunch with vegetables and fruit may be made most appetizing, and is followed by a cheerful afternoon, whereas a ponderous meat and wine meal entails heaviness of spirit.

Quantity of food required.

The calculations of Dr. Playfair "on the food of man in relation to his useful work," enable us, by another route, to arrive at an estimate of what amount of solid victuals is required by an adult living by bodily labor to preserve his health under various circumstances. The circumstances which chiefly affect the question can be classified thus: (1) bare existence; (2) moderate exercise; (3) active work; and (4) hard work.

The first is calculated from the mean of sundry prison dietaries, of the convalescents' diet at hospitals, that of London needle-women, and of that supplied during the Lancashire cotton famine, as reported by Mr. Simon. The result is that, in a condition of low health, without activity, $2\frac{1}{4}$ ounces of nitrogenous food, 1 ounce of fat, 12 ounces of starch, and $\frac{1}{4}$ of an ounce of mineral matters a day are necessary. The amount of carbon in this is equal to 7.44 ounces. In other words a man's life will be shortened or burdened by disease in the future, or he will die of gradual starvation, unless his provision for a week is equivalent to

three pounds of meat, with one pound of fat on it, or with the same quantity of butter or lard, two quartern loaves of bread, and about an ounce of salt and other condiments. If he can not get meat, he must supply its place with at least two extra quartern loaves, or about a stone and a half of potatoes, or between five and six pounds of oatmeal, unless he is, indeed, so fortunate as to be able to get skim milk, of which five pints a week will replace the meat.

A person reduced to bare existence diet can undertake no habitual toil, mental or bodily, under the penalty of breaking down.

“Bare existence” diet is that which requires to be estimated for administration to certain classes of the community who have a claim on their fellow-countrymen that their lives and health shall be preserved *in statu quo*, but nothing further. Such are prisoners, paupers, or the members of a temporarily famine-stricken community.

It would be obviously unjust to apply the same scale of quantity and quality to all persons under varying circumstances of constitution and outward surroundings; and to attempt to feed in the same way all these people for short or long periods, idle or employed, with light work or hard work, in hot or in cold weather, excited by hope or depressed by failure, involves an error of either excess or defect, or both at once. The dietaries recommended by the Home Office for prisoners very properly take all these circumstances into consideration. They allot “bare existence” diet only to those sentenced to short terms without labor. And they recognize the fact that a man’s health is not injured (perhaps sometimes it is improved) by a few days of such abstinence as would in the long run be deleterious to him. Under a sentence of seven days a prisoner gets daily one pound of bread and a quart of gruel, containing four ounces of oatmeal. For more than seven out of twenty-one days he has an extra half pound of bread. For longer terms it is advised to add potatoes and meat. The nutritive value of the first named diet is thus calculated by Dr. Pavy :

Nitrogenous matter,	1,800 ounces ;
Fat,	480 “
Carbohydrates,	10,712 “

Of the second:

Nitrogenous matter,	2,448 ounces ;
Fat,	608 “
Carbohydrates,	14,792 “

In the convict establishments prisoners are all under long sentences, and are classified for dietetic purposes according to their occupations.

The sparest of all is called “punishment diet” and is administered for offences against the internal discipline of the prison. It is equivilant to corporeal chastisement, being designed to make the stomach a source of direct pain. It is limited to a period of three days, and fully answers the purposed end as a deterrent by causing the solar plexus to experience the greatest amount of distress it is capable of, for after the expiration of that period, sensation becomes blunted. It consists of one pound of bread and as much water as the prisoner chooses to drink. This last named concession is not an unimportant one ; for it has been already remarked that a supply of fluid enables starvation, and by implication abstinence, to be longer borne. At the same time it probably postpones anæsthesia, and therefore makes the intended suffering more real. Punishment diet contains in Dr. Pavy’s estimate :

Nitrogenous matter,	1,296 oz.
Carbohydrates,	8,160 “
Fat,	0,256 “
Mineral matter,	0,368 “
Total of dry solids	10,080 “

This is about half of what an average man requires to sustain himself without work, and under its discipline he

would probably lose three or four ounces of his weight daily till his bodily substance was reduced by six-tenths, at which period, according to Chossat's experiments, he would die.

"Penal diet" is that which is apportioned for more protracted punishment. It may be continued for three months. It consists of 20 ounces of bread, 8 ounces of oatmeal, 20 ounces of milk, and 16 ounces of potatoes daily.

Its chemical constituents are as follows :

Nitrogenous matter,	3,784 ounces;
Carbohydrates,	19,864 "
Fat,	1,580 "
Mineral matter,	0,972 "
<hr/>	
Total of dry solids,	26,200. "

Upon this diet a fair amount of work may be done. The combustion of the carbohydrates involves sufficient force to raise a ton 4,193 feet ; and thus the effete muscular substance may be worn off by destructive assimilation, making place for new muscle derived from nitrogenous matter of which a bare sufficiency, but yet probably a sufficiency is supplied. A man of strong constitution is usually found at the end of it, to be in good health, and of normal weight ; yet, he has never probably experienced the content, which arises from a *luxus* (excess) consumption of food. It is intended to deny him the normal pleasure of the accumulation of reserve force in the gastric region. This pleasurable sensation under ordinary circumstances much promotes digestion, so that the whole of the ingesta are made the best use of ; and therefore "penal diet" as above quoted, it has been found expedient to introduce the slight excess to be noticed above what is needful to accomplish the required work in "foot-tons." The penalty of the regimen involves a certain degree of waste.

A close imitation of "penal diet" is that which the duty

of a responsible government demands should be served out during a temporary famine, that is, one calculated not to last above three months. It is more economical to introduce the elements of variety in the diet, than to be too monotonous—that is to save in the daily issue, and to be occasionally liberal, to feast from time to time as a break in the regular fast. The expense of the excess is more than replaced by the diminished habitual ration, and that powerful preservative of life, anticipation of pleasure, is brought into play. A reduction of the allowance below what experience has indicated as “bare existence diet,” made during the famine in Madras in the beginning of 1877, was attended with disastrous results.

By dint of mixing and varying his diet, and making it consist of very nutritious articles, such as bread, meat, yolk of eggs, and soup, Signor Cornaro succeeded in reducing the quantity he daily consumed to as little as 12 ounces (Venetian). But then he made the solids go much farther by the addition of 14 ounces of good wine. And the probability is that this gentleman had a peculiar constitution, for, in spite of his many readers, he has had no imitators of the experiment on their own persons.

The appropriate food of the second class may be fairly represented by the dietaries of European soldiers in time of peace. The English soldier on home service, according to Dr. Parkes, receives from Government $5\frac{1}{4}$ pounds of meat and 7 pounds of bread weekly, and buys additional bread, vegetables, milk, and groceries out of his pay. Such a diet is sufficient for anybody under ordinary circumstances of regular light occupation; but should extra demands be made upon mind or body, weight is lost, and, if the demands continue to be made, the health will suffer. Mr. F. Buckland, surgeon in the Guards, remarks (*Society of Arts Journal*, 1863, quoted by Dr. Playfair) that, though the sergeants in the Guards fatten upon their rations, the quantity is not enough for recruits during drill.

The Prussian soldier during peace gets weekly from his

canteen 11 pounds 1 ounce of rye bread and not quite $2\frac{1}{2}$ pounds of meat. This is obviously insufficient, but under the conscription system it is reckoned that he will be able to make up the deficiency out of his own private means, or obtain charitable contributions from his friends. Dr. Hildesheim ("Die Normal-Diat," Berlin, 1856, page 60,) states that asthenic diseases are very common in the army, which leads to the inference that the chance assistance on which the authorities lean is not trustworthy. As the legal rations in these two services does not profess to be a man's full food, it is needless to analyze it. In the French infantry of the line, each man during peace gets weekly 15 pounds of bread, 3.3 pounds of meat, $2\frac{1}{2}$ pounds of haricot beans and other vegetables, with salt and pepper, and $1\frac{3}{4}$ ounce of brandy. This seems to be enough to support a man under light employment. Its analysis gives :

Water,	179.83 ounces.
Nitrogenous matter (inates or albumen),	30.17 ounces.
Fat,	9.29 "
Carbohydrates (or starch),	126.84 "
Total of dry solids,	166.30 "

An Austrian, under the same circumstances, receives 13.9 pounds of bread, $\frac{1}{2}$ pound of flour, and 3.3 pounds of meat. The alimentary contents are :

Water,	129.50 oz.
Nitrogenous,	27.40 oz.
Fat,	8.23 "
Carbohydrates,	119.45 "
Total of dry solids,	155.08 oz.

The Russian conscript is allowed weekly:

Black bread,	7 pounds
Meat	7 "

Kawass (beer)	. . . . .	. 7.7 quarts
Sour cabbage,	. . . . .	24½ gills—122½ oz.
Barley,	. . . . .	24½ gills—122½ oz.
Salts,	. . . . .	10½ ounces
Horseradish,	. . . . .	28 grains
Pepper,	. . . . .	28 “
Vinegar,	. . . . .	5¼ gills—26½ ounces

The “moderate exercise” of brain and muscle combined in the above classes, is fairly represented in the convict scale by “light labor,” (such as oakum picking) and by “industrial employment,” (such as tailoring, cobbling, Roman mosaic, mat making, basket weaving, etc.) The dietary for prisoners thus engaged is nearly identical, except that the artisans using their brains, are supplied with about an ounce extra daily.

The “industrial employment diet” for a week is thus analyzed by Dr. Pavy :

WEEKLY ALLOWANCE.		Nitrogenous Matter.	Carbohydrates.	Fat.	Mineral Matter	Total Water-free Matter.
	Ounces.	Ounces.	Ounces.	Ounces.	Ounces.	Ounces.
Cocoa	3 500	0 560	1 540	1 295	0 105	3 500
Oatmeal	14 000	1 764	8 932	0 784	0 420	11 900
Milk	28 000	1 148	1 456	1 092	0 224	3 920
Molasses	7 000		5 380			5 390
Salt	3 500				3 500	3 500
Barley	1 000	0 063	0 743	0 024	0 0 0	0 850
Bread	148 000	11 988	75 480	2 368	3 404	93 240
Cheese	4 000	1 340		0 972	0 216	2 528
Flour	8 625	0 931	6 081	0 172	0 147	7 331
Meat cooked without bone or gravy.	16 000	4 416		2 472	0 472	7 360
Shins (made into soup).	8 000	1 688		0 320	2 072	4 080
Suet	1 500			1 214	0 030	1 274
Carrots	1 000	0 013	0 145	0 002	0 010	0 170
Onions	3 000	0 036	0 216		0 018	0 270
Turnips	1 000	0 012	0 072		0 006	0 090
Potatoes	96 000	2 016	21 120	0 192	0 672	24 000
Total water-free matter		25 975	121 175	10 937	11 316	169 403

This is probably a fair model for the most economical dietary on which an artisan or laborer on light work can thrive. It may be observed that the principle of variety is very conspicuous, and in private life it is possible to introduce still more variety by cookery. In the English and

Prussian armies, the introduction of variety is left to be attained by forcing the soldier to purchase some portion of his food out of his own pocket; in the French scale it is managed by issuing spices and various vegetables, and trusting to the innate genius of the Gaulish warrior for cooking. The issue of an occasional glass of brandy on holidays makes an agreeable change and benefits digestion; but if wine could be obtained it would be better and not extravagant. The Austrian bill of fare is sadly monotonous. The Russian ration may be noticed as particularly liberal of accessory and antiscorbutic food, from which civil as well as military dieticians might take a useful hint. Vinegar and other vegetable acids are too much neglected by our handicraftsmen and soldiers. The Carthaginians are stated by Aristotle to have used vinegar as a substitute for wine during their campaigns; and the recipes given by Cato for flavoring vinegar with fruits show that it was in use among the laboring population in Italy.

“Active” laborers are those who get through such an amount of work daily, exclusive of Sundays, as may be represented by a walk of twenty miles. In this class are soldiers during a campaign, letter-carriers, and engineers employed on fields, or as artisans. These habitually consume on the average about a fifth more nitrogenous food, and twice as much fat as the tool class, while the quantity of vegetable hydrocarbons is not augmented, except in the royal engineers.

The “hard labor” diet of convict prisons fairly represent what the authorities consider the minimum. It is the same as that already described as “industrial employment diet,” with the following additions: barley, one ounce; bread, twenty ounces; shins, for soup, eight ounces; carrots, one ounce; onions, one-half ounce; turnips, one ounce. It contains, however, fourteen ounces less milk, and one ounce less “meat.”

The nutritive value of the additions may be seen by Dr. Pavy's alimentary analysis, which is as follows:

WEEKLY ADDITIONS.		Nitrogenous Matter.	Carbohydrates.	Fat.	Mineral Matter.	Total waterfree Matter.
	Ounces.	Ounces.	Ounces.	Ounces.	Ounces.	Ounces.
Barley.....	1 000	0 063	0 743	0 024	0 020	0 850
Bread.....	20 000	1 620	10 250	0 320	0 460	12 680
Shins.....	8 000	1 688	.....	0 320	2 072	4 080
Carrots.....	1 000	0 013	0 145	0 002	0 010	0 170
Onions.....	0 500	0 006	0 036	.....	0 003	0 015
Turnips.....	1 000	0 012	0 072	.....	0 006	0 030
Total water-free matter.....	.....	3 402	11.276	0 666	2 571	17 915

From these totals must be deducted the articles cut off:

WEEKLY DIMINUTIONS.		Nitrogenous Matter.	Carbohydrates.	Fat.	Mineral Matter.	Total waterfree Matter.
Milk.....	14 000	0 574	0 728	0 546	0 112	1 960
Meat.....	1 000	0 276	.....	0 145	0 030	0 460
Total water-free matter.....	.....	0 850	0 728	0.700	0 142	2 420

The same food must be given, summer and winter, though the demand must be greater to provide for the extra quantity of heat required to be produced in cold weather. But then the amount of work is diminished at the latter season by $1\frac{3}{4}$ hours, which is equivalent to an augmentation of the diet. The additions are more judicious than those made by the classes above mentioned, who partly furnish their own food; for bread and vegetables constitute a large portion of the convict ration, and the extra quantity of soup replaces the lost milk, without risk of the waste in cooking, common when the uneducated deal with solid meat.

“Hard work” is that got through by English navvies, hard worked weavers, and blacksmiths, etc., which is more earnest and intense than the enforced “hard labor” of the convict. It is difficult to obtain accurate information, but it would appear from Dr. Playfair’s estimates that the customary addition to the diet is entirely in nitrogenous constituents. The higher their wages, the more meat the men eat.

The neglect of vegetables by the last two classes is, in a

physiological point of view, imprudent, and possibly may be a contributing cause of an inordinate thirst for alcohol which impoverishes and degrades many among them. To satisfy their instinctive craving for a hydrocarbon, they take one convenient, indeed, in some respects, but of which any excess is unwholesome. The discovery already mentioned of the production of force from the assimilation of starch leads to a knowledge, opposed to old prejudices but supported by experience, that the raising of the energies to their full height of usefulness may be effected by vegetable food quite as well as by the more stimulating and more expensive animal nutriment, or by the more rapidly absorbed alcohol.

With regard to the tables quoted above, in which ultimate analyses are used as data for dietetic rules, it must be noticed that their authors deprecate arguments being founded on any but the very broadest characters of the articles analyzed. Specimens, even when of the highest quality, differ strangely from one another. Season, soil, modes of culture, the variations of species, and many other little known influences, come into play and prevent our taking the market names of eatables as representatives of a definite chemical constitution. And it may be added that ample scope should be allowed for the peculiarities of the individual and of his life-history. In the application of general rules, some one must be trusted to relax or strain them when circumstances require, or failures of a fatal character may occasionally result, and more often a galling perversion of justice.

Estimates for the thrifty management of food-supply have usually reference to the feeding of others rather than to the calculation of a man's own dietary. Enough has been said on that point under the head of the influence of diet upon health; and if a person really wants to bring down the expense of feeding himself to the lowest point, he can readily rate himself under one of the classes enumerated above, and act accordingly. It may, however, be doubted whether it is wise to reduce the diet to the minimum which the work requires. The certain evils of an accidental defi-

ciency, or of a miscalculation, are so serious that the danger outweighs the possible inconvenience of a slight excess. It were an unthrifty thrift, indeed, which imperiled vigor of mind and body to effect a pecuniary saving; for there is no investment so remunerative as high health. A man need not consider that he is wasteful when he spends money upon making his bill of fare palatable and provocative of indulgence to the extent of moderate superfluity. Pleasure and Prudence here walk hand in hand.

Milk as an article of diet.

The nutritive properties of milk hold a middle rank between vegetable and animal food. It is strengthening, nutritive, and easily assimilated. It is mild, soothing, and instead of exciting the system and quickening the pulse, (like beef-tea or other preparations of animal food,) has a tendency to languor and disinclination for exercise. The milk of different animals differs in its composition and nourishing qualities and it varies according to the food on which the animal has been fed.

Cow's Milk.

Cow's milk, being the most plentifully furnished, is one of the greatest importance as an article of diet. In its pure state, it is only adapted for strong stomachs; but in cases where we wish to supply the system quickly with much nutritive matter in small bulk it is one of the best aliments. It should not be taken by persons laboring under indigestion, nor by those with weak stomachs. Under such circumstances it is very apt to turn acid on the stomach. To prevent this effect a small quantity of lime water often proves a useful addition. In all acute diseases milk should be prohibited, and, if taken undiluted, it is not well suited for the convalescent. In certain chronic diseases, such as spitting of blood, the early stages of consumption, the scrofulous affections of children, certain disorders of the urinary organs, chronic dysentery, and various spasmodic and ner-

vous diseases, the most appropriate diet, in the majority of cases, is milk prepared with bread, rice, arrow-root, and other farinaceous substances.

The albuminous part of milk is not coagulated into a mass by boiling like the white of an egg; this is owing to the greater quantity of water with which it is united. By the action of heat a thin film rises to the surface. By skimming this from time to time, the whole of the albumen may be removed. By this process milk is rendered less nutritive but more digestible, and is, therefore, better adapted to weak stomachs than if taken in a pure state.

Asses' Milk.

Asses' milk is not so rich in cream and cheesy matter as that of the cow or goat, but contains more sugar, and is much easier of digestion, being eminently adapted to patients whose digestive organs are in a debilitated condition. In many instances it proves gently laxative, and in this respect differs from that of the cow, which, in most cases, has rather an opposite tendency. To persons threatened with consumption, and in the early stages of that disease, more especially when associated with a deranged state of the stomach and bowels, the milk of asses, when it can be procured in sufficient quantity is of the greatest service.

Goat's Milk.

The milk of the goat is richer and stronger than that of the cow, but does not contain so much sugar. It is easier of digestion to many stomachs than that of the cow.

Milk consists of water, holding in solution, caseine, sugar, and saline matter, or salts; and, in suspension, fat (butter) in the form of minute globules, probably inclosed in a skin of caseine, which give the milk its white color and opacity.

The fat, with a little caseine, sugar, and salts, constitutes the cream, which separates on allowing the milk to stand at rest for some time, the greater part of the caseine, sugar, and salts remaining in the milk.

The composition of genuine milk varies with many circumstances.

The proportion of cream varies greatly ; in ten samples of genuine milk tested, it ranged from $10\frac{1}{2}$ to $17\frac{1}{2}$ per cent. (by volume). The specific gravity of the milk, that is, its weight, as compared with the weight of an equal volume of water, should always be ascertained ; although we cannot, as is frequently supposed, draw from this any very definite conclusions as to the quality of the milk. Fat being lighter than water, an increase in this, which of course increases the richness of the milk, causes a decrease in its specific gravity ; and, therefore, if we depended on this alone as a test of the genuineness of milk, we might be led to declare a sample mixed with water, when in truth it was not only quite genuine, but unusually rich ; and, on the other hand, a sample from which a part of the cream had been withdrawn would have its specific gravity increased, and might be pronounced of very good quality.

The age of the cow, the food on which it is fed, and even the temperature of the atmosphere, influence the quality of the milk. Cows fed upon beet-root yield milk containing less caseine and less fat, but considerably more sugar than that of animals fed on hay or grass ; whilst carrots appear to increase the quantity of sugar, without making any appreciable difference in the caseine and fat. Experiments on this subject are, however, as yet too few and too imperfect to allow us to draw accurate conclusions. It has been stated that in a hot and dry country the yield of milk is less, but its quality richer ; also that cold weather is favorable to the production of caseine and sugar, whilst hot weather increases the proportion of butter. All these statements, however, require to be confirmed by further and more carefully conducted experiments, before they can be fully relied on.

In analyzing a sample of milk, we should ascertain the amount of solid matter, of caseine, fat, sugar, saline matter (or salts), water, the proportion of cream as indicated by the lactometer, the specific gravity of the milk, and of the serum

(or liquid portion) of the milk from which the caseine and fat have been removed by coagulating and straining. The accurate determination of these points is far from being a simple matter. "There's chalk in the milk," is all nonsense. Chalk will not remain in solution, but will settle. Hence milk is not adulterated with chalk. Milk is reduced by water, and if the body is again made up which the water has reduced, it is done by adding corn starch, or calves' brains. Some children in cities literally starve to death on this sort of milk.

Starch in milk may be detected by putting a drop of iodine into a glass of milk, when the starch will give off a blue color; or, by boiling such milk, it will thicken. *Animals' brains*, which are sometimes mixed in milk, may be detected with the microscope. Soda is often put in cans of milk that are to be transported, to keep the milk sweet.

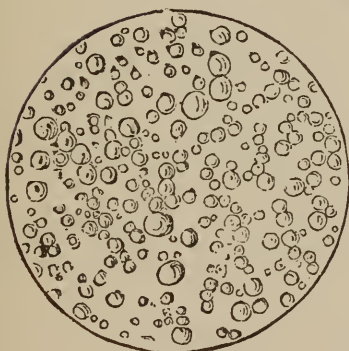
Pure milk contains:

<p>Water, 862.8</p> <p>Solid particles, 137.2</p> <p style="text-align: right;">—————</p> <p>To parts, 1000.0</p>	<p>Butter, 43.8</p> <p>Sugar, 52.7</p> <p>Caseine, 38.0</p> <p>Saline, 2.7</p> <p style="text-align: right;">—————</p> <p>137.2</p>
<p>GRASS-FED COW'S MILK.</p> <p>Water, 868</p> <p>Solid, 132</p> <p style="text-align: right;">—————</p> <p>To parts, 1000</p>	<p>Butter, 44</p> <p>Sugar, 46</p> <p>Caseine, 39</p> <p>Salt, 3</p> <p style="text-align: right;">—————</p> <p>Solid matter, 132</p>
<p>SWILL MILK.</p> <p>Water, 930</p> <p>Solid parts, 70</p> <p style="text-align: right;">—————</p> <p>To parts, 1000</p>	<p>Butter, 18</p> <p>Sugar, 8</p> <p>Caseine, 34</p> <p>Salt, 10</p> <p style="text-align: right;">—————</p> <p>Solid matter, 70</p>

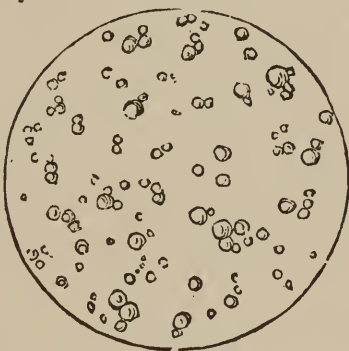
The reader will perceive by these quotations, (from Dr. Samuel R. Percy's report to the Academy of Medicine, New York), that it requires twice as much swill milk to give the same amount of nourishment as of a pure article. Furthermore, the swill milk is diseased, and, when magnified, appears as represented in the illustration. It contains corrup:



Swill Milk Magnified.



Pure Milk.



Watered Milk.

matter, and pieces of *diseased udder*, with broken-down rotten globules.

The result of feeding children on this pernicious article of diet is to generate scrofula, skin diseases, rickets, diarrhœa, cholera infantum, and consumption, or marasmus—wasting away.

The quantity of cream in any sample of milk may be ascertained by means of an instrument called a lactometer.

The specific gravity of milk in its fresh condition, as

already stated, affords no indication of its purity or otherwise. It appears, however, that the serum has a more constant specific gravity; and, by accurately observing this, a tolerably correct idea may be obtained as to whether or not the milk has been diluted with water, and even what quantity of water has been added.

The specific gravity of the milk itself, and of the serum, may be taken with the hydrometer, or more accurately with the specific gravity bottle.

But as an article of diet it would appear that the nutritive value of milk, as compared with other articles of animal food, is not generally appreciated. Dr. Wiggin, of Providence, R. I., says there is less difference between the economical value of milk, beefsteak, eggs, or fish, than is commonly supposed. The quantity of water in good milk is 86 to 87 per cent., in round steak 75 per cent., in fatter beef 60 per cent., in eggs about 68 per cent. From several analysis recently made, he estimated sirloin steak (reckoning loss from bone) at 35 cents a pound, as dear as milk at 24 cents a quart; round steak at 20 cents a pound, as dear as milk at 14 cents a quart; eggs at 30 cents a doz., as dear as milk at 20 cents a quart; corned beef at 17 cents, as dear as milk at 15 cents.

The result from these deductions seems to be that milk, at even 12 cents a quart, is the cheapest animal food that can be used.

Granting this to be true, another question arises which must be settled if we would expect to derive the full benefit of using milk as an article of diet. It is known by experience that milk does not equally agree with all persons—in the case of some producing headache and feverish symptoms, and in others giving rise to biliousness.

Milk, after being taken into the stomach, is converted almost into a solid curd by heat, and the acid given off by that organ combining with potash and the soda which the milk contained, and which was necessary to keep it in a state of solution. The watery portion being separated and

absorbed, the gastric juice finds it difficult to penetrate and break down the remaining curd which now acts as a crude and indigestible substance in the stomach, giving rise, by reflex action, to headache, and by its irritating presence, interfering with the digestion of other substances that may be going on. In consequence, the contents pass out of the stomach in an imperfectly digested condition, and in their subsequent course through the system are not properly assimilated; and on arriving at the liver clog that great strainer of the blood. The bile not being properly poured out of this organ, the blood in passing through it becomes impregnated with bilious matter which is carried on through the round of the circulation, showing its effects in a sallow cast of countenance and skin, and occasioning those general unpleasant symptoms comprehended under the term of biliousness. In order to render milk more digestible, its particles should be divided, which can be effected by bread, or some other farinaceous article. When cooked with rice and eggs (rice pudding), it forms the type of a proper food; containing nitrogen, phosphates and starch. Milk, when used as a drink, should be boiled, then diluted with water. The solid matter of milk constitutes a little more than $12\frac{1}{2}$ per cent. of the whole, of which more than one third is caseine, or the cheese principle, about one quarter is butter and the balance sugar and salts of these substances, the butter and the sugar supply heat to the body, while the caseine contains tissue-making material in a most concentrated form.

Our Bread.

The following article is cut from a very interesting chapter by Dr. C. Both of Boston:

The history of bread reaches back too far to ascertain its invention. The word "bread" does not mean the same substances everywhere. On Otaheite and the Moluccas, bread indicates the fruit of the bread-tree (*artocarpus incisor*). What maize-corn is for the Mexican highlands, the banana is for the tropical lowlands. In some of the poorest districts

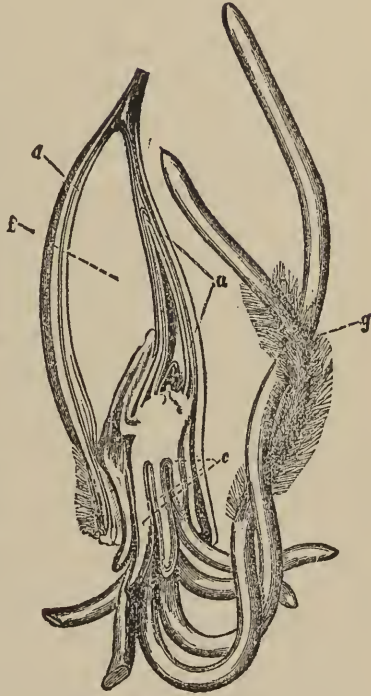
of Europe the potato forms all the bread that can be obtained by the laboring class; while guinea-corn, oats and barley, several kinds of palms, manioc or cossava, yam, and many other roots and vegetables furnish what is called bread in various parts of our globe. We make bread of wheat, rye and corn. Of wheat we cultivate several kinds, the principle of which are *Triticum vulgare* and *Triticum spelta*. These different kinds exhibit again small differences, according to the ground and climate where they grew.

The comparative anatomy and physiology of a single grain of wheat or barley is very interesting. Under the microscope we distinguish twenty-three different parts, which resemble very much the different linings, vessels and embryonic parts of an animal egg. The root and leaf germ resemble the yolk; and the flour body, the white of an egg. We observe also around the egg as well as around the grain four different skins or linings. The flour body is divided into capsules, the inner ones of which are filled with starch cells, the outer ones with albuminous matter. From this flour body the young plant is nourished before it is able to extract its nutriment from the ground by means of roots. It is this flour body which principally constitutes our fine flour. A hen's egg needs for development of its embryo, heat and air; our grain needs the same in connection with water. An egg can be kept several months by the exclusion of heat and air; the life-principle of grain can be preserved thousands of years, as the wheat grains found in the Pyramids have shown. If we take a grain of barley and soak it in water, then expose it to a middling summer-heat in air, the seemingly dead life-principle immediately developes itself. After some hours we observe the under thicker part to swell and open, and a few string-like fibres appear, which, under the microscope, show a fine, hairy coat. These are the roots of the germ. The leaves press themselves upwards to the point of the grain, and if kept moist long enough, we may see them appear on the opposite side of the roots several hours later. As long as we keep this grain moist it

grows until its flour body is exhausted, when it perishes for want of nourishing earth.

The process which the starch-cells have to undergo during germination is also very interesting, being, if I may be allowed the expression, actually devoured by the germ. Before this can be done the starch-cells have to submit to a chemical change, by which they are transformed into a liquid form. They form, through the aid of the albuminous capsules before mentioned, "granulose," "dextrin-gum," and "glycose." These three forms represent only transformation stages. Between starch and glycose, many more conditions exist; but these three are the principal ones. Glycose is extensively found in plants, and all sweet-tasting juices owe this property to it. All sugar in plants found in connection with acid is glycose; but in the absence of acid we have cane-sugar. Different forms of glycose are honey, potato, manna, mucine, grane, glycyrrizine-sugar, etc. The difference between cane-sugar and glycose is, that the latter brought in contact with ferment cells, or albumen, ferments; while cane-sugar cannot ferment as such, but has to reform in glycose with loss of lactic acid. The object of malting for making beer, and the object of raising dough for making bread, is the transformation of starch into glycose.

Before we can make bread of grain we have to grind it to powder, then sift and bolt it; thus we obtain fine flour. By grinding the grain, we break the cellulose linings, which form the capsules inside and outside the grain, and thereby



set free the starch cells as well as the albuminous matter, generally called gluten. By sifting we separate the coarser parts of cellulose from the starch, gluten, germ, and finer cellulose; by bolting we finally separate starch and gluten from almost all cellulose. Whoever has sent grain to a mill, must have observed that from the same grain he did not receive back the same quantity of bolted flour; and many a miller has suffered the name of a cheat for this reason. The truth is that gluten extracts moisture rapidly from the air, and, if so, it will remain with the cellulose, holding back at the same time many starch cells by its sticking qualities. Grain should therefore be well-dried before being sent to the mill, and should be bolted in a dry atmosphere.

To prevent starvation we could eat flour as it is; the digestive apparatus would be able to digest it, and sustain life. We can save a good deal of digestive labor by boiling flour in water. But for the purpose of quick digestion, we must make bread; and for the purpose of pleasure and quick digestion we should make good bread; and for the purpose of good health, strength, beauty, and the above together, we make different kinds of bread.

To make bread is very easy as every house-wife knows; but they all know that they cannot produce equally good bread.

Within the last fifty years chemists have written a great deal about it, and have, I dare say, brought about quite a number of changes, and perhaps some misconceptions of the real principle of fermentation.

It has been proposed by chemists to aid bread-making by additions of soda, of potash, of muriatic and phosphoric acid; of carbonic acid, and several other processes. The origin of all these propositions may be found in an imperfect knowledge of the laws of fermentation. No process whatever can quicken, help, or improve the above mentioned one, when properly executed. The rules repeated will appear as follows:—

1. Good flour not matted together, and of good and distinct odor.
2. Complete diffusion of the ferment cells throughout the dough by means of
3. Well dispersed and equally mixed water (or milk).
4. The greatest possible quantity of atmospheric air brought into the dough by the act of kneading.
5. Equal temperature of not less than 70 degrees, not higher than 90 degrees, without disturbance.
6. An oven of not less than 425 degrees Fahrenheit of heat.

In spite of this great heat it will occur that the fermentation in the middle of the bread will not be entirely interrupted until the bread becomes cold. If so it will, when eaten warm, continue fermenting in the stomach, and produce flatulency. As bile stops directly all fermentation, this will cease in the intestines; but in case of absence of bile, or of deficient quality of it, fermentation will continue throughout the intestines, and cause disagreeable and painful sensations. This is the reason that dyspeptic people should never eat bread until totally cold, or stale.

Many people are accustomed to drink while eating, which is a gross mistake under all circumstances. We should masticate farinaceous food long enough to be well mixed with saliva to be swallowed. Do we drink water or any other liquid, so do we only cheat ourselves. If we can not produce saliva, it is a sign that the stomach is not ready to receive food at all; as quick as we have swallowed enough for digestion the saliva glands cease to produce saliva, and without drinking we can not eat any more. We can drink all we want before or after eating, but should not substitute water or any other liquid for saliva. Many sickly people will find this simple rule of the greatest advantage, and I dare say that if we were taught from childhood what and how to eat and drink, we might avoid a great deal of painful and annoying troubles. The truth of this statement can be found by experiment. A person with a somewhat delicate stomach

may swallow several pieces of meat, or one or two raw eggs without chewing, and it will not produce any trouble; but if the same person should try to swallow three boiled potatoes, in pieces, without chewing, he will soon find the difference. Heart-burn, followed by flatulency, are the consequences. If bread-eating causes any such difficulty, the reason lies in these facts. The chemical difference of wheat, rye and corn, will appear from the following table. In 1,000 parts of flour we find—

Grain.	Albumen. (Gluten.)	Fat.	Cellulose.	Starch.	Gum.	Minerals—Pot- ash, Soda, Lime, Magnesia, Iron, Phosphorus, Si- lex and Sulphur,
Wheat	155 56	18	27	577	65	23 15
Rye	107	19	26	580	102	22 26
Corn	108	76	51	588	34	3 52

The mineral contained in different grain will vary somewhat according to the land where they grew. There are some remarkable differences between rye and wheat. From the fact that wheat contains 50-1000ths more albumen than rye, it appears that wheat requires less ferment than rye or corn to be transformed into glycose at the same time; wheat contains of all three the most phosphorus, rye the most sulphur. Both these minerals are of great consequence in the human economy. Phosphorus is a very essential ingredient for the nerve-cells, while sulphur is a most necessary constituent of human bile. In no way can we substitute either in an artificial way. We might eat all the sulphur and all the phosphoric acid we please, without adding the least particle to our blood formula; it is, therefore, the prime object of medical science to study the contents of food, and its scientific use. Wheat bread ranks first for the purpose of supporting intellectual labor; and rye bread ranks first for the purpose of supporting the animal economy of men. On account of its poverty in minerals, Indian corn bread does not rank at all; but may be used as a substitute for production of fat.

A lady wishing to improve her form and flesh should eat

the following bread: Take half wheat and half rice flour (rice contains the greatest amount and finest quality of starch). Diffuse the ferment cells in milk instead of water; before baking add butter and salt. No food can supercede this for the above purpose.

All persons suffering with affections of the liver should use not too finely bolted rye flour in preference to wheat. As the digestion improves wheat flour may be mixed with the rye. Such bread should be thoroughly baked, and not eaten before it is two days old. More salt should be added than is ordinarily necessary.

All students and intellectually engaged persons, with perfect digestion, should eat wheat bread of such flour, as it has the strongest and richest flavor (gluten and germ).

Under certain circumstances of the body, additions of oatmeal or flour, made of peas or lentils would be of advantage. Especially is this the case in pulmonary consumption, for the sake of the lime, which oats, lentils, and peas contain more than other grains. Bread for consumptives should be made of finely bolted rye flour, with additions of some finely bolted (dry) oatmeal or lentils; some yeast dissolved in water, half water and milk, or pure milk, according to the digestive power of the patient; afterward some fresh butter and salt should be added. Such bread contains the greatest amount of sulphur, lime, magnesia and silex. In consumption these minerals are used in the body to calcify those diseased cells which cannot be expelled, thus rendering them harmless to the organism. (Natural and artificial calcification of morbid cells.)

A fat man wishing to have bread to produce the least fat, should eat the following articles. Take the remains of the flour which is left after bolting, consisting principally of cellulose and gluten; use sour leaven instead of yeast; let the dough stand longer than for the other bread, and bake well. Such bread has a very agreeable odor; its taste, when properly made, indicates a tendency to acidity (lactic acid); it digests very slow, and contains no fat-rendering material, and

is very healthy. As will be seen from the above, the different kinds of bread can be made by mixing different kinds of flour; by taking different kinds of ferment; by fermenting less or more; by mixing butter, milk, sugar, molasses, cream, eggs, lard, or other substances with it, and by baking more or less; all for the sake of taste, pleasure, custom, prejudice, and health.

It was not the intention of this article to exhaust the subject, and to state all that possibly could be said about bread. The object was to show what points and advantages can be derived from a knowledge of our daily food. What the philosophers of past ages tried in vain to find—the most wonderful agents for longevity, beauty, preservation of youth, for health, for the improper balanced human economy (disease)—we find all together in our daily food. The knowledge of our food, its preparation and its purpose in the animal economy, gives us an unfailing guide for pleasure, entertaining study, health, beauty, long lasting youth, strength, and above all, the power of preventing and actually curing of diseases heretofore considered incurable in spite of experience of two thousand years; of calculation, speculation and remedies.

Water, its effect upon health.

Loomis says *water* may be regarded as a portion of our food, both because it is taken in so large quantity in the liquid state, and also because it forms so large a proportion of our solid food. It is the means of adjusting the temperature of the body, of eliminating the carbonic acid from the lungs, saline and oily substances through the skin, and the nitrogenized products of waste by the kidneys.

The most important agency of water in the system depends on its great solvent power. But this property also renders it liable to be frequently contaminated. The contamination may be only slight and its effects may be only slowly cumulative, unobservable perhaps for months, and then show themselves in such forms of disease as are at once obvi-

ously traceable to this source. Its work is imperceptibly slow, but the constitution is no less certainly undermined.

The best water, that is, water containing the least foreign matter, is rain water. But water is never free from some foreign ingredients. Even when it has been subjected to natural distillation by being taken up into the atmosphere as vapor and condensed into clouds, and finally into rain and snow, it absorbs in its passage through the air, oxygen, carbonic acid, and ammonia. These additions are not regarded as hurtful. The water of springs and streams in granitic and other silicious geological formations, has nearly equal purity with rain-water.

But the water that falls upon the surface of the earth where the formations are either alluvial or calcareous, reappears as springs in which the water is highly charged with hurtful ingredients, mostly in the form of lime or magnesia. Waters of this kind are known in common language as "hard." Where hard water abounds, the taste of those who use it so adapts itself that the water is not disagreeable, but is greatly preferred to soft water; yet it is, undoubtedly, to some extent, hurtful. It compels the system to take on an abnormal condition, and hence favors either directly the occurrence of some disease, as goitre, or it operates conjointly with other causes in inducing disease of the digestive organs.

Dr. Litheby, in the *British Medical Journal*, says that he considers moderately hard water better suited for drinking than that which is very soft—an opinion which is confirmed by that of the French authorities, who took the Paris water from the chalk districts instead of from sandy strata. He also states that a larger percentage of French conscripts are rejected from soft-water districts than from neighbourhoods supplied with hard water, and that English towns supplied with water of more than ten degrees of hardness have a mortality of four per one thousand less than those whose inhabitants use soft-water.

Deleterious ingredients of the more important class are

of organic origin. Soils of every kind contain decaying animal and vegetable matters. Most of the springs from which wells are supplied must be fed from rain water which has passed through such soils. The rocks through which it has filtered have deprived the water of much of its impurity, but many wells, especially those of no great depth, contain traces of impurities which the surface soil has imparted. But no precaution can prevent impurities both in the wells, and in the rivers in the vicinity of large cities, where the refuse from manufacturing establishments, and the contents of cesspools and sewers must be disposed of. Hence, the obtaining of water for cities from a distance and from the purest sources is necessary to health, and all requisite expenditures however great, are regarded as justifiable and imperative.

Having shown that it is not easy to obtain pure water, we will endeavor to give some of the simplest means of purifying it by the use of filters, so composed as to strain out the pure water, leaving the deleterious particles.

Charcoal as a water-filter.

Dr. Franklin, F.R.S., was the first to show that animal charcoal will not only remove organic, but also many of the inorganic constituents of water. Mr. Skey, of New Zealand, proved, in 1868, that even arsenic may thus be removed, showing still further the efficacy of animal charcoal for purifying water for drinking and other purposes.

Removal of organic substances from water.

It is well known that the presence of any organic substances in water is very detrimental, and various methods have been suggested for removing them. Permanganate of potash has been employed in many instances; but a much better application is said to consist in the use of black oxide of iron. This is obtained most readily by heating powdered red hematite iron ore with saw-dust in a crucible. If impure water is allowed to percolate through a layer several

inches thick of this black oxide of iron, the organic constituents will be completely neutralized. Such filters of black oxide of iron have been in use for several years without having lost their efficiency.

Dr. Adam Miller, of Chicago, gives the following admirable and simple means of preparing a filter: Take a common flower-pot, new from the store; place a small sponge over the hole in the bottom; over this sponge place a piece of broken crockery with the concave side over the sponge; then place another sponge over this, so as to cover the bottom of the crock, and fill the crock with fine, clean sand, two-thirds full, and mix with the sand a teacupful or more of finely pulverized charcoal. Then place this on two cross-sticks over an open-mouthed jar and pour water repeatedly and gradually over the sand and charcoal, and the water that passes through this will be pure and clean and perfectly clear from poisonous substances.

The source of water supply is perhaps the most momentous problem which a town's population can have to solve, and it has acquired still greater importance from recent investigations respecting the spread of disease; yet not only the source, but the quantity, distribution, and even quality of water, are not unfrequently in the hands of those whose interests are not those of the consumers. A trading monopoly may decimate by cholera and diarrhœa, may degrade in filth and depravity, the poor of a town, which in cruel mockery they are said to serve. On the subject of purity much difference of opinion still unhappily exists. What amount of impurity, what amount of animal pollution, if any, can be consumed with safety? Does filtration, does exposure to air in the river's course, convert a sewage-laden water into a wholesome drink? are questions still seething in the crucibles of rival chemists—questions which it may yet be that the physiologist will be called upon to decide. Low levels will receive the drainage from higher parts and of streets as well. Sewers will leak or get blocked, old cess-pools are never in repair, yet pumps are still used in the

densest quarters of our towns and cities, and, as might be expected, are the fruitful source of typhoid and choleraic disease.

Lead Tubes or Pipes.

Numerous, serious and frequent fatal consequences have followed the use of lead pipes for conveying water into houses.

The following are symptoms of lead-poisoning, some or all of which may be considered as the forerunners of serious disease:

1. A blue discoloration of the gums at their junction with the teeth. This was observed about the same time by Tanquerel, by Dr. Schilbach, of Neustadt, and by Dr. Brinton, of London. The discovery of this mark has proved a blessing to thousands. When present it is positive evidence of the poison; it is not, however, developed in every case. M. Brachet (Paris, 1850) states that it is almost always present in patients poisoned by inhalation.

2. A metallic taste and fetid breath. Observed also in slow poisoning from other metals, as mercury and copper.

3. Lead-jaundice. Sometimes the complexion assumes an earthen hue; sometimes it becomes transparent and waxy, presenting an appearance of excessive delicacy. Emaciation is an occasional phenomenon. These primary effects rarely co-exist. The diseases likely to follow, are:

1. Colic or neuralgia, chiefly abdominal. It is common and well known as lead or painter's colic.

2. "Arthralgia," or neuralgia of the limbs. These are anomalous pains, chiefly in the limbs, and without redness or swelling. The cause being overlooked, rheumatism is generally assigned as the explanation. In true rheumatism the joints are most involved. In ordinary neuralgia the pain chiefly follows the nerve trunks. In this affection the pain is in the finer branches of nerves, distributed to the muscles.

- 3 Paralysis, or lead-palsy. Any muscles of the body may be involved. The arms, wrists and fingers are oftenest

weakened. Paralysis is usually only partial. Wristdrop is characteristic. Amaurosis, or paralysis of the retina, deafness, and loss of voice, are occasioned.

4. Cerebral affections. The most most frequent of these are convulsions; they are usually epileptic.

In view of these facts, there can not be two opinions as to the impropriety of using lead pipes for water when their use can be avoided, and pipes are now manufactured and sold which insulate the lead from the water by a lining of block-tin, a harmless material, durable and not very expensive.

A tin tube is inclosed within the leaden one, and the two are drawn out by hydraulic power. The inside of the compound tube has, therefore, a tin instead of a leaden surface; and as tin is unacted on by air and water, all risk of poisoning is prevented.

Before leaving this part of our subject, think it eminently proper to speak of the danger of drinking water without discretion. Not a season passes when a number of laboring men do not die by drinking this pure and heaven-prepared beverage, to excess, when overheated. Strange, men will do this, when a very small quantity will much better quench their thirst, and do them good, instead of harm. Let any one, no matter how thirsty, drink only a swallow, gargle his throat a few times, with cold water, and he will find his heat allayed, and thirst quenched, much more thoroughly than if he drinks a pint of iced water, and without risk of death from its effects. Remember this, while hot weather lasts.

Another phase of the subject can be found in the following article, taken from the London *Lancet*.

There is a practice, against which many persons need to be put on their guard—namely, drinking cold watery beverages in cold weather. Cold drinks are depressing in their influence, and the result of taking such draughts when performing more than common feats of strength and endurance, particularly in middle age and advanced life, is to lower the tone of the nerve centers at a time when it is most desirable that they should be in exceptionally good working or-

der, so that they may retain the vitality to meet unusual need. So far as we are aware, the physiological effect of iced potations taken hastily when putting forth special strength and making a peculiarly large demand on the vital force of the nervous system is either not understood or is forgotten. For the sake of the many zealous statesmen and politicians who do not seem to have given the need of special precautions in this particular a single thought, it is desirable to point out that the worst illnesses may, and do, proceed apparently from insignificant causes. This is one of the petty causes which may lead to sad results.

MINERAL WATERS.

The following letter from an article in the *New York Medical Journal*, by Dr. Kessler, gives some very excellent thoughts upon the use and abuse of mineral water.

“What are mineral waters?”

Waters impregnated with mineral substances would seem to be a perfectly plain and correct answer, and yet a little reflection will show that this definition is by no means justified in the light of physical and chemical facts. Does not all water chiefly belong to the mineral kingdom, and does not even the rain-water contain foreign substances in admixture with its own essential elements? and if the term “mineral water” implies, indeed, the presence of a larger quantity of mineral substances than is usually found in common sweet water, we must not lose sight of the fact that there are springs noted all over the world for their efficacy and healing power.

The methodical use of mineral waters is alone indicated in chronic affections, and these only when the organism is not wholly reduced by protracted disease, or a fatal *dialysis*.

Mineral waters can be used either at the home of the patient, or at the spring, but the latter is for obvious reasons far more preferable, and should be insisted on whenever practicable. The physician in recommending a spring must however not be guided solely by the chemical ingredients of the water, but almost as much so by situation, climate, and surroundings of the spring. Springs are situated in various latitudes and have, therefore, a variable mean annual temperature; some possess besides, in consequence of their peculiar situation, either near to the sea or to snow covered mountains, either giving access to warm or cold winds or not, another mean temperature than the one corresponding with the isothermal line that intersects them. But still of far greater importance, is the mean temperature of the summer which exhibits in most places more striking differences than does that of the whole year, and yet, an equable climate, or at least are subject only to very slight diurnal and monthly fluctuations in temperature, is essential in the treatment of diseases.

To send a patient suffering from inflammatory irritation of the respiratory mucous membrane, to a spring situated in a region where the air is very dry, is just as irrational as to send a rheumatic to a fountain whose atmosphere is always surcharged with aqueous vapor, and therefore apt to restrain transpiration.

For reasons most intimately connected with conditions of seasons and atmosphere, and too numerous to be mentioned here, the months of June, July, and August are the fittest time for the use of mineral waters. If this is, however, true in a general sense, the spring and autumn offers still many advantages. A moderate temperature of the air is, in many forms of disease, and with irritable, readily perspiring individuals, far more favorable to the use of warm mineral waters and baths than the oppressive heat in the months of July and August. To nervous, excitable persons, the ceaseless turbulence prevailing at much frequented watering-places, especially during the height of the season, is absolutely injurious,

and they do better to choose either May or September for their cure.

Neither very hot and dry, nor cool and rainy seasons, are propitious for the use of mineral waters, and in either case the physician must give his patients especial directions for their conduct. Little active exercise, lighter raiment and cooler baths are indicated pending the hot term, and the reverse after the heat has moderated.

Of late years continental physicians have adopted the practice of prescribing the use of mineral waters, internally, and in the form of baths, during the winter season, and decidedly with excellent success.

Patients should, as a rule, drink smaller quantities of mineral water during the cold season, should but gradually and cautiously increase the dose, take their breakfast some time after the last glass is consumed, and bathe not before several hours have elapsed. The baths require no higher temperature than in summer; but, if the skin is to be incited to greater activity, the patient must stay for some time in bed and take no active exercise in the open air before the warmer hours of the day, and then, only, where he is not exposed to cold winds.

We have seen many evils resulting from the careless and indiscriminate use of mineral waters, many aggravations of suffering, and many artificially-produced ailments; and where is the physician who has not witnessed the same in the course of his practice? The use of mineral water can not be advantageous unless prescribed, directed, controlled, and carefully watched, by a physician, who is cognizant of its character and effects; he alone can, during the progress of the cure, determine whether it is suitable or not, how long and in what daily quantities it must be taken, whether bathing should be combined with drinking, what should be the proper diet and regimen, and he alone can institute all those modifications necessitated by individual cases, constitutions, and idiosyncrasies.

As in every treatment, so chiefly in the use of mineral

water, and even in sea-bathing, a *rigorous diet* is of supreme importance, and one of the most essential conditions of success. Drinking four or five glasses of mineral water in the morning and then sitting down to a breakfast of hot cakes and fried ham, or to a more sumptuous dinner-table, laden with all the choice luxuries of the season, and all the delicious yet indigestible dishes of salads, and the no less reprehensible ones of pies and pastries, not only annuls the desired effects of the cure, but is productive of positive harm. But too often the home physician is blamed for having sent the patient to an unsuitable spring; but too often the latter returns not only unrelieved of his complaints, but even in a worse condition; and yet the cause of all this can frequently be traced to his own imprudence and intemperance.

BATHS AND BATHING.

So far we have considered water only as regards a healthy supply for drinking, but we will now look at it from the no less important standpoint of its use in baths and wash-houses, which should in every town be within the reach of the very poor.

Dirt and disease are inseparable, and it should be a lasting disgrace to the community that renders both inevitable by a water supply which is either impure or insufficient for the wants of the population.

“The celebrated French physician, Dumoulin, in his last moments, while surrounded by several of his colleagues, who were deploring his approaching death, addressed them thus: “Gentlemen, I leave behind me three excellent physicians.” Each of the doctors present conceived himself to be one of the three; but they were soon undeceived, when he informed them that the three he meant were *water, exercise, and diet*.

The application of cold water to the body is beneficial as a purifier and as a tonic. It is a true saying, that "cleanliness is next to godliness"; the ancient lawgivers recognized the intimate connection between the former and health, and secured a great sanitary blessing by making ablution a religious ceremony.

The skin is the natural outlet for the discharge of carbonaceous and effete matter, the retention of which is liable to produce disease; if the pores of the skin be obstructed, the lungs have double duty to perform in separating the carbon from the blood. Cold water acts also as a tonic, the most powerful and the most natural, promoting the circulation in the skin, relieving internal organs, and, by its consequent reaction, increasing the vigor of the whole body. The most convenient mode of application is by means of a sponge, thus avoiding the sudden shock of the shower bath, and the greater cold of a general immersion. The use of cold water almost of necessity implies that of *friction*; this, however, is valuable in itself, by increasing the flow of blood to the skin, and relieving the internal congestions—the primary cause of many diseases. The digestive system, especially in old persons, sympathizes strongly with the condition of the skin; at this time of life, a languid state of the cutaneous circulation is a frequent cause of indigestion and ill-health.

. The Duke of Wellington, well called the "Iron Duke," owed, in great part, the remarkable preservation of his physical faculties to habits of exercise, and to his vigorous and persevering use of friction over the whole body. He heartily approved of that excellent invention, horse-hair friction-gloves, which, by their roughness, supply the place of strength during friction; to this he added other practices conducive to health. He lived so simply that his cook, a master of his art, was forced to leave for want of opportunity of displaying his skill; he never used tobacco nor wine; he slept on his narrow, iron cot-bedstead, thinking that when he wanted to turn over it was time to get up; he was often early in the streets, on foot or on

horseback, when other persons were in bed. The late Emperor Nicholas of Russia lived in the most simple manner, using active exercise, sleeping, and even dying, on his leather camp-bedstead. The simple habits of the Emperor William of Prussia, during the recent war, are well known."

The use of the bath has existed, in all probability, from the beginning of the world, since it is founded in the most natural wants of man. The necessity of maintaining the cleanliness of his person, of defending himself from the heat of a burning sun, and of seeking refreshment after the fatigues of the chase, war, or labor, must have taught him, from an early period, the advantages derivable from bathing. But in barbarous ages, in which art has as yet accomplished nothing for the convenience of life, men merely plunged into rivers, streams, fountains, and other natural reservoirs of water. They were far from dreaming of the erection of apparatus by means of which they might be enabled, as at a later period, to take their baths at any time, season, or place, and of an agreeable and salutary temperature.

A few general rules to be observed with regard to bathing.

All full bathing should be taken when the body is warm. In chronic cases the bath should be followed by walking, or other active exercise, if the patient's strength will admit.

No meal should be taken within an hour after bathing, nor should a bath be taken within two hours after eating.

The best times for bathing are on rising in the morning, at ten A. M., and at three P. M., and at bedtime.

All patients who are able, should use moderate exercise previous to bathing.

Every full bath should be taken quickly, the patient, if able, rubbing himself vigorously, then dressing and exercising. In acute diseases, however, exercise should not be taken.

No strong shock should ever be produced upon the head.

Each patient should use the water at a temperature best suited to his situation.

Wetting the head and the chest before taking a full bath is a useful precaution, and especially for persons liable to head affections.

The fact of a person being in a full perspiration is no objection to taking a bath provided the body is not in a state of exhaustion, nor the breathing disturbed.

The towel, or sponge bath.

Persons who are reduced, physically, may bathe part of the body first ; as the head, face, arms, and chest, drying and rubbing with a dry towel, or the dry hand, before bathing the rest of the body. This form of sponging the patient's body in fevers, or other acute diseases, is frequently better than exposing the whole body. The temperature of the water must be governed by the feelings of the patient. It may be commenced with tepid water, and gradually reducing it to cool, or cold water, as the patient is able to bear it. In acute diseases when the object is to reduce fever, water at a temperature of seventy-five, or eighty-five degrees, is better than colder water. The best time for taking a sponge bath is in the morning immediately after rising from bed ; sometimes a second bath may be taken before going to bed. Exercise in the open air should follow the bath. The baths may be continued for a quarter of an hour or longer, if it is desired to act as a stimulant, or to cool off the body. When a shorter time is used, it has a strengthening and exhilarating effect, and also equalizes the circulation of the blood.

Shower baths.

These baths are taken in a box, or a machine constructed for the purpose ; the water is brought into contact with different parts of the body, at the same time, in little streams. Weak or nervous people should begin with tepid water, gradually making it colder.

This bath may be taken by a person standing in an empty bathing tub, or other vessel, and an assistant standing on a chair, and pouring water over him, from a common

watering pot. These baths stimulate the nervous system and the skin; they are recommended particularly in diseases which require repeated sweatings for their cure, or for patients, who in consequence of disease of the chest, can not bear the full baths, after sweating.

Wash-tub bath.

This is a convenient and valuable resort in fevers. Fill a tub one-third or one-half full of water, either cold or warm, in which place the patient, having his feet in a smaller tub or vessel. If the patient be weak he should have an attendant. The body and limbs should be thoroughly washed, occasionally pouring water of the same temperature over the shoulders and body. As a general rule, tepid water is the best, being less liable to produce a return of fever. The bath may be continued from two, to five, ten or fifteen minutes, according to the height of the fever and the strength of the patient. It should not be prolonged so far as to produce chilliness or pallor of the skin, or blueness of the nails. Dry with towels, or dry rubbing with sheets. If the fever returns the bath should be resumed, until it is reduced. It is very useful in eruptive fevers, bilious fevers, typhoid, and the hot stages of intermittent.

Rubbing or dripping bath.

This is a valuable remedy, and may be used in various diseases and states of the system. Take a coarse linen or cotton sheet, and wring it well if you wish it for a rubbing-sheet, and wring it lightly for a dripping sheet. Throw it quickly about the patient's body from behind and let him and the attendant both rub briskly over the sheet for two, three, four, or more minutes, until the surface of the body becomes thoroughly warm. Follow it with a dry sheet and towel and hand-rubbing. When used as cold as it can be borne, it acts as a tonic and stimulant. It removes feverish thirst, takes off languor, gives new vigor to mind and limb, and produces a pleasant glow over the body. If the patient is feeble, the

sheet should be of a mild temperature, from eighty to ninety degrees, gradually reducing it. When used for stimulating and invigorating the nerves or the brain, or for reducing pain, it should be cool or cold, and the sheet be re-wet, and re-applied several times in quick succession.

For feverish pulse and heat in chronic diseases, it may be used at bed-time, and should be of mild temperature. It has a tendency to allay nervous excitability and induce sleep. It is valuable in fevers of all kinds; also in diarrhœa, dysentery, colic, etc. The patient before taking the bath, should wash his hands and face in cold water.

Pail douche.

This is more stimulating than the preceding, and excites greater nervous action. The patient should stand in an empty bathing-tub, and the attendant, having prepared two pails of water, one warmer than the other, should dash the warmer pailful half upon his chest, and half upon his back, following with the second pailful in the same manner; then dry and use friction. It is not advisable to use this in great nervousness; nor should it be used when there is serious disease of the heart or lungs. It is generally used when the temperament is sluggish, or the disease is of a general nature.

The wet sheet packing.

This is a valuable process to reduce the heat of the body in fevers, and to remove unhealthy secretions. The same remark which has been made regarding the weakening and lowering effect of fomentations applies to this process; it is directly lowering, but indirectly strengthening; it reduces excess of blood in one organ in order to send sufficient to another, which has too little. Still, it materially reduces the circulation; and where that is very feeble, from deficiency of blood in the whole body, it requires care in application. Hence, I have found it necessary to introduce (for it is not spoken of in works on the water cure) the use of towel as well as sheet packing. In very delicate and bloodless

patients, I generally begin packing with a single towel placed down the front of the trunk, and they will be able to warm this, and not have the circulation so lowered as when the whole body is involved in a wet sheet. By degrees, as the blood begins to circulate better, I put a towel on the front as well as on the back of the trunk, and so gradually and safely get into the employment of the sheet over the whole body. Another advantage of this partial packing at first is, that the arms are free, and this is no slight consideration to nervous and delicate persons, to whom the constrained and helpless position of the entire sheet packing is sometimes very disagreeable, and might, by acting on the nerves, be harmful. By the use of fomentations and the towel packing, I have been enabled to undertake and successfully raise up patients whom, without them, I must have altogether declined to treat.

The novelty of such a process as wet-sheet packing past, it becomes one of the most agreeable, because one of the most soothing, of all the water remedies. By it the nerves proceeding from the brain and spinal cord to the skin, and which are morbidly sensitive in all chronic diseases, are relieved for the moment, from the irritation of the air, and placed in the mild atmosphere of warm vapor which is made by the heat of the body acting on the moisture of the sheet. Instead, therefore, of irritations proceeding from the extremities of those nerves, spread over the skin towards the brain, this last is quieted by the temporary withdrawal of them; so much so that the patient ordinarily sleeps whilst packed, and will sleep then when he could not sleep without it. On coming out of it, therefore, the nervous energy of the skin having accumulated strength by the rest thus given to the nerves, is in the best condition to react upon the bath which follows. Add to which, that the quietude of the brain has freed the viscera from irritations which it sends to them in the ordinary progress of chronic disease, and thus they, too, are in the best condition for reacting on the external application of cold. The whole body has been rested, its organic powers have been accumulated, and it can now respond to the stimulus

to be applied to its external surface. Accordingly, the shallow or sheet bath is applied immediately, at an appropriate temperature, and the result is a rush of blood to the skin; a rush, be it remarked, produced by the organic powers of the body itself, and not liable, therefore, to be followed by a reflux. This process, repeated day after day, and sometimes twice daily, at length fixes a quantity of blood in the blood-vessels of the outer skin, and thereby reduces the disproportionate quantity which was congested in the inner skin or mucous membrane.

The time in which it is necessary to remain in the wet sheet must vary with the powers of the individual submitted to it. Suppose the patient to be forty or forty-five minutes before he feels thoroughly warm in it, it is generally advisable to leave him for an hour and twenty minutes, or an hour and a half from the first packing. The accumulation of warmth then produces sufficient circulating power in the skin to react upon the subsequent ablution in the shallow bath or dripping sheet. Moreover, this slowness in warming in the sheet implies an inveterate degree of irritation and oppression in some internal organ, which therefore requires a full quantity of the soothing and derivative effects of the remedy in question.

When, however, the patient speedily—that is, in ten or fifteen minutes—gets thoroughly warm in the packing, an hour is the outside time requisite for him to remain. There are some cases where even this is too long, and they are known by headache, swimming, and sensations of fainting showing themselves. In these cases, the irritation to be removed not being of that inveterate kind which interferes with blood-making and heat-making, caloric soon accumulates, and to such an extent as to cause the sheet to pass from its soothing to its irritating and depressing stage of agency; and the pulse falls so low as to cause irregular circulation in the brain and the phenomena above mentioned.

Between these extremes of peculiarity as regards the action of the wet sheet, there are numerous shades. But to

detect any of them, and thus to obtain all the good available from the remedy, requires not a small amount of medical knowledge and experience in the practice of the water-cure.

As one great result of the wet sheet is to produce augmented and healthy secretions from the mucous membranes—especially the digestive—the state of those membranes should be accurately examined previous to ordering it and during its use. It is by virtue of this power that it effects such wonders in some cases of obstinate constipation.

The secretory agency of the wet sheet alluded to points out its impropriety—or the care with which it must be used—in all cases where the feebleness of the bowels readily leads to exhausting diarrhœa.

So long as there is internal irritation to remove, the patient goes on daily gaining power of speedily warming in the sheet, and the time for his remaining in it consequently diminishes. But when irritation is subdued, the wet sheet, if continued too long, tends to produce the symptoms of depression already mentioned; The patient does not feel comfortable in it, though it be warm; he gets out of it weary and weak, and his head begins to suffer.

Many curious phenomena take place in some patients by frequent use of the wet sheet; amongst the most singular is that of its becoming of a beautiful rose color. This will sometimes continue for a week or two, then cease, and in a few weeks return again. In other cases, the sheet is found, when taken off the patient, after an hour's packing in it, to be glutinous, and to have extracted fœtid matters from the skin.

The sweating pack.

The bed should be prepared as for the wet sheet pack, omitting the sheet, and having two blankets next to the patient. He should then lie down, and the assistant bring over the blankets and comfortables, tucking him closely; other blankets, or a small feather bed should be placed over all, and closely tucked, especially around the shoulders and feet, so that the hot air can not escape. A jug of hot water may be placed to

the feet with advantage. If the head gets hot a wet towel may be applied to the forehead, and the patient be given plenty of water to drink. The windows of the room should be opened, so as to keep a good supply of fresh air. It will generally require from two to three hours to produce perspiration. This pack should be followed by the rubbing sheet, or half pail, or pail douche. It is used in skin diseases, torpidity of the liver, indigestion, and also in chronic rheumatism and gout.

The vapor bath.

The patient should be undressed and seated in a chair, with a couple of blankets pinned around his neck. A small tub or tin pan filled with hot water, should be placed under the chair, and red-hot bricks or stone, should occasionally be put into the vessel, so as to keep the vapor constantly rising. The time required to produce perspiration, will vary from ten to twenty minutes. If the head is affected unpleasantly, producing faintings, sickness, or fulness of blood in the head, it should be stopped. The patient may be allowed to drink cold water, or bathe the face with cold water, or a wet towel may be placed upon the head at the commencement. After using this bath, a full bath should be taken to cleanse the skin.

It is useful in diseases of the skin, colds and fevers; sometimes in suspended lochia. It should not be administered to those who have weakness of the lungs.

The hip, or sitz-baths.

A common wash tub will answer for this bath. The tub should be large enough to admit of the motion of the arms in rubbing, and deep enough to allow the legs to bend over each other without producing pressure, or checking the circulation. The patient may either undress completely, or remove the clothes from the parts of the body to be immersed in the water. When the bath is used as a tonic, the water should be cold and the patient remain in from five to ten to

fifteen minutes. Persons who are feeble, should use warm water, and remain in from one to five minutes; gradually reducing the temperature until they can take a cold bath. The water should cover the hips, and lower part of the abdomen. In the cold stage of intermittent fever, the warm sitz-bath will very much mitigate the severity of the chill; and when followed by the cold rubbing wet sheet, when the hot stage comes on, will often break up the attack.

In acute inflammation of the liver, stomach, bowels, spleen, and kidneys, the sitz-baths should be used very frequently. At the same time, use injections of cold or warm water.

The tonic sitz-bath, requires frequent repetition; from three to six times a day. It may be used in cases of excessive menstruation, leucorrhœa and prolapsus uteri. The sitz-bath is used more frequently as a derivative in obstruction of the liver and kidneys, dyspepsia, determination of blood to the head, constipation of the bowels, etc. When used for this purpose, the temperature should be from sixty to eighty-five degrees; the patient should remain about fifteen minutes in the bath. When used for piles, or chronic affections of the genital organs, it should last from twenty to forty-five minutes. The sitting bath should not be taken immediately before eating, nor within two hours and a half after a meal. Moderate exercise should be taken after each bath, if the patient is sufficiently strong; if not, active friction should be used, to secure reaction.

The shallow bath.

A shallow bath tub may be used, or a common wash tub. The water should be from four to six inches deep. During the bath, the abdomen and lower part of the body should be well rubbed by the patient, or by an attendant, the head should also be sprinkled, and the back and chest rubbed. When there is no chilliness, a pail of cold water should be poured on the chest and shoulders. This bath may be employed from one to fifteen minutes, by those who are very

feeble and sensitive to cold, and from fifteen to thirty minutes, by others. It may be followed by the dry rubbing sheet, or by hand rubbing. It will be found useful in the treatment of skin diseases, sick headache, rush of blood to the head, apoplexy, paralysis, sunstroke, etc.

The plunge bath.

The plunge bath should be taken in a large reservoir or trough, filled with water. It is generally taken after the sweating process, and sometimes after the wet sheet, by those who are able to bear the exercise. The patient should wear the sheet and blanket to the bath, and first wet the head and chest, before plunging into the water.

It may be used with advantage in all chronic diseases, which are not attended with determination of blood to the head, or difficulty of breathing, or disturbance of the circulation. The temperature of the bath should be from fifty-five to sixty-five degrees, and the person should remain in from a few seconds to two or three minutes in chronic diseases. In high fever the patient may remain in from ten to fifteen minutes.

The foot bath.

This is an excellent means, especially in diseases of the head and chest, and may be used also to prevent cold feet.

If the object is to determine blood from the head and chest, the vessel should not be too large, and the bath be continued from twenty minutes to an hour. If the congestion increases during the bath, cold applications should be made to the parts affected. The feet should be rubbed during and after the bath.

The warm foot bath is valuable to relieve attacks of headache, and to quiet the nervous system.

The head bath.

The common method of bathing the head is by wetting cloths in water and applying, or pouring a stream of water

over the head. In chronic affections, however, a derivative or sedative effect is desired; for this purpose the patient should be on a rug or mattress, the back of the head resting in a shallow basin or pail holding from two to three inches of water. It may be changed every 15 or 20 minutes.

When the water is poured on the head, the patient should lie face downward, and a tub placed under the head to catch the water; the stream should be poured steadily for several minutes until the head is well cooled.

The eye and ear bath.

Forcing a small stream of water through a syringe or hose, is useful in some diseases of the eye and ear.

The nose bath.

In catarrh, colds in the head, nose bleed, etc., this is beneficial. Water should be snuffed through the nostril, and drawn back if possible, so as to be ejected by the mouth. This should be repeated several times a day. It is used as a tonic.

Another very important classification has reference to the temperature of the bath, as ;

The hot air bath.

The hot air bath is simply an exposure of the body to dry air at a temperature of from 130 to 160 degrees Fahrenheit. It is, productive, at first, of stimulation of the skin and lungs, as well as of the circulation. In a few minutes a copious sweat starts out, and there is a sense of fulness and constriction of the head. This bath can only be used for a short time; its secondary effect in suitable cases is tonic.

The Turkish bath.

The Turkish bath consists, as used in Philadelphia, of the following processes: A dry hot air bath, at a temperature of 140 to 170 degrees, according to location in the room, (Sometimes the air is raised to 220 degrees, but seldom).

In this the bather remains from ten to fifteen, twenty, or thirty minutes, if cool and comfortable, and perspiring freely. If thirty he is allowed ice-water to drink. Often the difficulty is, not to keep bathers in this room, but to induce them to leave it. (2.) Shampooing in a moist air at 100° to 110° , preceded by a hot shower-bath, if desired, to wash off the sweat. This process occupies ten to thirty minutes or longer. (3.) Soap and brush are now used, and then a hot or warm shower, followed by either a cool shower or a turn or two in the swimming pool. (4.) The body is now thoroughly dried, great care being taken with the hair, and a brief rest is taken before the bather goes away. These various manipulations are modified somewhat to suit individual cases.

The Russian bath.

Differs from this only in the fact that the steam room, at a temperature of 100° to 150° , is used instead of the dry hot air room.

The Turco-Russian bath,

Which is very popular, is a combination of these two, the dry hot air being taken first, followed by manipulation, shampooing, and showers; then the steam followed by cool or cold showers, swimming and drying. Dr. Lutz, the proprietor of the Philadelphia "Thermae," lays down the rule that one ought never to stay in either the hot air or steam room if in anywise oppressed, or to use very cold water afterwards, if one feels any shrinking from it.

Sand baths,

Are of very ancient date, and consists simply in burying the body in hot sand on the seashore or near some hot spring (or in sand artificially heated). Establishments for the methodical application of this remedy may be found in Dresden and some other European cities.

Trousseau recommends douches of hot sand, 140° to 158° in some cases of articular rheumatism.

Sun baths,

May, perhaps, be mentioned here, as they are considered by many persons a great luxury. They are nothing more than exposures of the body, naked or lightly clothed, to the sun's rays. Of course the head should be protected.

Mud baths

Are used at many Spas of Germany. They are prepared by working up peat-earth with mineral-waters into a pultaceous mass, which is brought to the desired temperature (85° to 100°), and the patient immersed in it. After a suitable time he is transferred into a warm water bath for the purpose of cleansing, and then dried. Baths made with sea-mud are in high repute in some parts of Sweden and Russia.

Pine-leaf baths.

Have been used in some cases, especially of chronic muscular rheumatism, with supposed advantage. An extract of the leaves, or a decoction, strengthened by the addition of the product of distillation of the juice, is added to water in the desired quantity. Such baths are strongly stimulant to the skin at a lower temperature than the ordinary hot bath, and their perfume is agreeable. The resinous evaporation has, moreover, a soothing and tonic effect upon the mucous membrane of the air-passages. Baths of this kind are to be had at many German Spas and watering-places, but are in this country mainly, if not entirely, in the hands of irregular practitioners. Baths are classed according to temperature, as follows: Below 85° Fah., they are called cold; between 85° and 95° tepid; from 95° to 104° warm; and from 104° to 110° , hot. The effects of baths vary greatly with the temperature of the water employed. In general terms, it may be stated that the cold bath is at first depressing, and then, by reaction, stimulating; the tepid or warm bath relaxing and prostrating (persons have often been known to faint from too long continuance in them); the hot bath stimulating. Hence a great deal of judgment may

be needed to determine the propriety of employing one or the other form of bath in any special case. Of course, the surf bath, the one by far the most used at the seashore, is a cold bath, modified somewhat by the exercise commonly involved in taking it.

The hot salt baths,

Lately established at many seaside resorts, have some very great advantages. They are very stimulating and form an admirable tonic in cases of convalescence, in rheumatism, and in many chronic affections.

They are not followed by depression. They excite the functions of the skin and tone up the whole system. The only caution to be observed is to have them of exactly the required temperature, and this is generally that which is the most agreeable—and not to remain in them too long. Ten minutes is usually long enough to derive all the benefit they can give,

Sponging with hot salt water is very useful in many cases of debility. It may be done without fatigue to the patient by simply putting a piece of water-proof cloth beneath the part to be bathed—one arm at a time, and then the other, then the legs successively, and thoroughly sponging each part.

A salt and whisky bath is very refreshing, and of course more stimulating than that with salt water alone.

We come now to speak of sea-bathing, quoting largely from a series of very excellent articles in *Household Words*.

This custom, which is, on the whole, a most salutary and beneficial one, has not been introduced by the dictates of the physician; as the public themselves have, in the majority of instances, selected the seacoast as their healthful retreat quite apart from any advice of the medical faculty. On this account it is that almost as many lives have been lost as saved by sea-bathing, by its reckless, unadvised use in comparative health, and by carelessness and misuse in the treatment of the invalided. The absurd notion which has taken

hold of the mind of the public—that sea-water can do no harm—is totally unfounded. Beneficial effects from sea-water, as well in health as in disease, depend upon the same principles as those of fresh water. Although its prejudicial effects are less easily incurred, and by slower degrees, yet they are no less certain.

The distinction between sea-water and fresh water bathing is very considerable, the former having a decided preference. The object of cold bathing is in almost all cases the bracing and strengthening of the system. True it is that the most important results of baths are effected by the temperature of the water ; nevertheless, its chemical composition is to be considered as a matter of great importance. The sea-bath, or mineral-bath, containing salt and iron in solution, is necessarily far more tonic and stimulating than fresh water can possibly be. The composition of sea-water is : Muriate of soda, muriate of magnesia, sulphate of soda, and other salts in small proportion, besides iodine, bromine, and animal and vegetable substances. The qualities of sea-water vary very greatly in different seas, and under different degrees of latitude. In deep water the saline components are in proportion much greater than on the surface and along the shore. The beneficial effects derived from sea-bathing vary in different places and upon different constitutions, dependent on the composition on the sea as well as on the climate, and temperature of the atmosphere. These substances, mixed with the water, are in some degree absorbed by the skin, and carried into the system.

There are circumstances necessarily connected with a visit to the sea side, which greatly tend to increase its beneficial effects. In almost all instances the used up man of business or of pleasure ; the man suffering from general debility, occasioned by his mental or physical powers having been overtaxed, or from continued residence in close, unhealthy towns ; and persons suffering from general languor and lassitude, or undergoing difficult and tedious convalescence from the effects of severe illness or accident, are bene-

fitted. To these people it is not the sea-air alone, nor yet change of air; but it is change of scene and habit, with freedom from the anxieties and cares of study or business, the giddy rounds of pleasure, the monotony of everyday life, or the sick-room and convalescent chamber, which produce such extraordinary beneficial effects—a seemingly perfect renovation of wasted energies and renewal of the powers of life—effects not to be obtained by means of any purely medical treatment.

With bathing in the open sea, there is to be considered, first, the shock experienced on entering water at its natural temperature, then shivering, convulsive respiration and oppression of the chest are always experienced, although but for a moment, and pass away on immersion and free action in the water; secondly, the stimulating effect of the saline substances; thirdly, the mechanical action and pressure of the large moving mass of water and the motion of the waves acting as douches, which, combined, are not in all cases well borne by delicate persons and children. The direct effect of cold bathing is sedative and benumbing, causing the blood to recede from the surface of the body into the grand arterial trunks, congesting the brain and internal organs, depressing the vital powers, and as it were bringing on death. It is this direct effect we have to guard against, and this we can only do by encouraging sufficient and healthy reaction, indicated by the genial glow, feeling of general vigor, and increased appearance of blood to the surface of the body, sometimes simply wearing the aspect of a healthy skin; but at others exhibited by small red patches like measles, diffused redness as in scarlatina, or spots like flea-bites. It is, therefore, how to avoid the direct evil effect, and how to encourage sufficient and healthy reaction, that we have to consider.

First the duration of a cold bath should not be too prolonged.

We have now to consider the frequency of the bath, and the treatment which should be adopted in taking it. A few

days' residence on the coast should always be allowed to elapse before commencing a course of sea-bathing, which should never be done in a state of fatigue when coming off a journey, nor yet on the day succeeding the taking of medicine, however simple. Moderately delicate persons, too, who do not class themselves amongst the invalided, should be careful to observe moderation, and bathe on alternate days, as daily bathing is frequently found productive of lassitude, accompanied by a manifest wasting of the body. During a course of sea-bathing, and even when the warm sea-water bath is used, friction with a flesh-brush, or coarse hair gloves should not be omitted. This may enable a person to continue the course, when otherwise he must give it up. It is to be observed moreover, that, on coming out of the water, the body should be quickly rubbed with a coarse towel, but as the influence of salt water acts beneficially upon the muscular fibre it is totally unnecessary and superfluous to extend time in carefully wiping the skin, while the speedy resumption of the dress is of the utmost importance. In cases, however, of the skin being especially delicate and morbidly sensitive, it is necessary to wipe off the salt water, as it acts as an irritant to the skin; but in these cases extensive use of the flesh-brush should not be omitted, as by that means a more hardy condition of the skin, and a consequent diminution in the sensibility of its natural delicate organization is secured. The use of the brushes, also, should not be overlooked in all instances in which sea-bathing is resorted to for the purpose of restoring an enfeebled system to the vigor of health. There is no case in which moderate exercise after bathing is not to be recommended. It must not, however, be too violent, or too long continued.

There remains yet to consider sea bathing in respect to certain diseases for which it may be beneficially applied. Sea air and sea bathing exercise great power in regulating the action of the bowels. Sometimes constipation is temporarily caused, but more frequently, upon arrival at the seaside, a relaxed state of the bowels sets in; this is more es-

pecially the case with children, sometimes extending even to diarrhœa. Torpor of the bowels has not unfrequently been rectified by a course of sea bathing, and a regular system become established, when all other methods have failed. In the case of dislocations and sprains, the astringent and tonic effect of the cold sea bath, brought to bear locally, forms an invaluable auxiliary to other remedies, as it braces the surrounding muscle and tissues, and thus strengthens the natural supports. The respiratory passages and air-tubes are often greatly benefited by residence at the sea-side, which may be attributed to the greater purity and consequent salubrity of its atmosphere. Sea air and bathing are most efficacious in the rectifying of chronic and constitutional diseases, and indeed serve as a remedy when all other remedies have failed. At first the sores often enlarge and the discharge increases, but this only by way of purifying and clearing off the disease, and after a short time the sores become entirely healed.

Of headaches there are many kinds : those occasioned through nervous depression are almost without exception benefited by sea bathing, and sponging the head with cold water every morning. The body should be repeatedly immersed, but the continuance in the water should be of short duration. Neuralgia and other nervous affections should be treated in the same manner, but it must be borne in mind that unless both the head be profusely bathed with sea water, and the body immersed, the pain will be rather increased, and probably brought on ; but if the sea bath be judiciously applied, it will be found, almost universally, to avail in arresting neuralgia, and all complaints of the nerves requiring tonic treatment. Those, again, who very generally suffer from headache after bathing, are persons of full habit and good digestive organs ; these headaches are of the congestive order, and may be checked, if not entirely prevented, by being moderate in diet, taking plentiful exercise, keeping the bowels free by aid of mild aperient medicine, and remaining a limited time only in the water. Sea bathing is bene-

ficial in cases of headache arising from anæmia, frequently exhibited by hysteria, especially with young ladies of delicate constitutions, as also for constitutional, general, or local debility of parts of the body. In all the last named cases a course of tonic medicine, with sea baths, taken at suitable times and weather only, and careful attention to diet are required. In cases of paralysis the use of sea-water sometimes prove beneficial, but it must not be used without due knowledge and great care. The object to be aimed at in paralysis is to strengthen the nervous system, and to induce the superficial or capillary circulation to increased activity; tepid sea-water bathing, therefore, is sometimes advised: but generally, in cases of some long standing, sea-air and drinking a little clean sea-water, procured at a good distance from the shore, as an aperient in the morning, have been proved beneficial.

THE VIRTUES OF HOT WATER.

So much benefit has been derived from the use of hot water, that we are confident a little space can be no better employed than by giving some facts as to its use.

Hot water in nausea and vomiting.

Dr. Morton says, in the *Louisville Medical News*, that several years ago he learned from his own personal experience that no agent relieves nausea and vomiting so satisfactorily and promptly as water, as hot as can be drank. Since then he has used it in a large number of cases, and no remedy he ever administered in any condition has proved more uniformly reliable. He has preserved records of many of these cases, and makes the following classifications: 1, cases in which nausea and vomiting occurred at the onset or during the course of acute febrile disease; 2, cases in which these symptoms were caused by overloading the stomach

when its functions had been impaired by protracted disease ; 3, cases in which they were produced by nauseous medicines (not emetics) at the time they were taken ; 4, cases of acute gastritis caused by the ingestion of irritants ; 5, cases in which these symptoms were purely reflex ; 6, cases of chronic gastritis ; 7, cases of colic in newly-born infants ; 8, cases of flatulent distention of the stomach in adults.

Injections of hot water in dysentery.

Dr. John G. Earish gives, in the *College and Clinical Record*, the history of three cases of dysentery, in all of which copious injections of hot water resulted in almost instantaneous amelioration of the distressing symptoms, followed by a speedy cure.

Hot-water cure for bad condition of the stomach.

Any one who will drink a goblet of hot water just after arising or just before retiring—the former preferable—will become as regular in their habits as the most healthy of men. The water must not be tepid, as that will cause nausea.

Many who, for constipation and indigestion, visit hot springs and find great relief, think it is the mineral properties of the water which produce such wonderful effects, when the truth is it is because the water is hot.

In the restaurant at the Capitol at Washington hot water is kept on tap, and a stranger visiting the room, and knowing the convivial habits of many of our Representatives would think the tank contained the strongest of liquids instead of the weakest.

A sufferer for many years from chronic constipation, after trying the remedies of competent physicians and many others, found a cure in hot water ; the great feeling of oppression on the head and depression on the mind was entirely removed.

Hot water is not without its virtue in cases of consumption and dyspepsia.

It is claimed, upon good authority, that the only rational

explanation of consumption is, that it results from defective nutrition. It is always accompanied by malassimilation of food. In nearly every case the stomach is the seat of a fermentation that necessarily prevents proper digestion. The first thing to do is to remove that fermentation, and put the stomach into a condition to receive food and dispose of it properly. This is effected by taking water into the stomach, as hot as can be borne, an hour before each meal. This leaves the stomach clean and pure, like a boiler that has been washed out. Then put into the stomach food that is in the highest degree nutritious and the least disposed to fermentation. No food answers this description better than tender beef. A little stale bread may be eaten with it. Drink nothing but pure water, and as little of that at meals as possible. Vegetables, pastry, sweets, tea, and coffee should be avoided. Put tender beef alone into a clean and pure stomach three times a day, and the system will be fortified and built up until the wasting away, that is the chief feature of consumption, ceases, and recuperation sets in. At first the patient may find the treatment unpleasant to take, and from the, at first, difficult swallowing of a single cup of hot water before each meal, an increased dose of three cups will be taken with a relish equal to that experienced on drinking the choicest wine.

Hot water taken in like manner, with a rational regulation of diet, have proven very efficacious in the treatment of dyspepsia, if it has not absolutely affected a cure.

Cleanliness ought to be attended to in our houses, as well as in our persons and dress. Fevers of a malignant and contagious nature often originate among the inhabitants of close dirty houses, who breathe an unwholesome air, wear their clothes until they become very dirty, and take but little exercise out of doors. Where a number of persons are collected together under one roof, cleanliness is a point of the highest importance, as it is a well-established fact that contagious diseases are communicated by air which has become tainted, and which soon takes place by its being breathed

over and over again, and by its being further deteriorated by a want of due ventilation and proper cleanliness.

Those who are obliged to earn their daily bread by pursuing a dirty and unwholesome employment, might probably avert some part of the danger connected with it, by keeping their skin clean by frequent ablutions of their bodies with water, and changing their linen sufficiently often, taking care at the same time to keep their abode clean, and purified by a free admission of fresh air into it daily. If people have no faith in cleanliness, no faith in wholesome air and pure water; If they are not themselves convinced of the dangers of over-crowding and of epidemic disease, their ignorance and skepticism becomes the gravest obstacles to improvement. Some rudimentary instruction in sanitary matters is urgently needed, not only in our institutions and schools for the poor, but in all our common and higher grade schools as well. The sanitary sense should be carefully cultivated in the young; and we might then hope by a ready obedience to the reasonable laws of health, to attain at last that "harmony of the moral nature" which is the end and aim of all true sanitary science.

Origin of hygiene.

According to Dr. Lyon Playfair, the study of sanitary science in England arose from a singular accident. The Court and Parliament were at Oxford, which had been recently drained, and the citizens had removed all accumulations of filth and garbage from the streets, lest they should offend the nostrils of their distinguished guests. The plague was raging at the time, and Oxford was the only place which enjoyed an immunity from it. Cause and effect were for the first time connected in the public mind, which was thus enlightened for the first time as to the nature of what we now call pythogenic, or filth-born maladies. Prior to that, the measures recommended by the council of physicians of Paris for the arrest of the plague were: That if a shower of rain fell during the day a spoonful of treacle should be taken, and

that fat people should not sit in the sun. Mitchelet declares that for several centuries during which filth reigned supreme, not a man, woman, or child in Europe took a bath voluntarily and out of a desire for cleanliness. Out of this chronic and wide-spread filth arose the black death, the plague, the sweating sickness, and other pestilences, the consequences of bad hygienic conditions.

“Prevention is better than cure,” is an old proverb, and, what is more, a very true one, and it is prevention that the hygienist studies—prevention of disease of whatsoever kind by the removal of its causes. The means by which diseases are prevented are often those which answer best for their cure; and here we perceive the link which joins hygiene and medicine, and which constitutes what we may call the therapeutical side of our science.

Filthy streets give off exhalations, which are nothing less than the breath of disease. One fruitful cause of annoyance and often of disease, is the foul odor from the privy. By the use of the earth closet we may be relieved from the evils attendant on carelessness, negligence, and ignorance, in the removal and disposition of human excreta; by it the ordinary commode may be used in bed-rooms and closets without offensive odor. Its use depends on the well-known power of dry earth as a deoderizing agent, more economical and of wider utility than the water-closet, and leaving a product of great value to the agriculturist. Time will not allow further allusion to this excellent invention, other than to assure our readers that dry earth, at once applied, will instantly remove all foul odor from human excrement, whether in the chamber or privy; and this inodorous product, where earth is scarce, may be used several times over, giving out no odor, and becoming each time a more valuable fertilizer. The importance of this in the sick chamber, and in places where water is scarce, can hardly be over-estimated; it removes a serious cause of disease, in the house, and enables the farmer to convert his privy from an ever-present nuisance into an odorless source of profit.

Pure air and sunlight may enter our houses, and yet every room be more or less infected by emanations from neglected cellars. A damp and foul cellar is a perpetual source of danger; decaying vegetable and animal matters are the favorite nesting-places of the seeds of disease, which so frequently spread death in a mysterious way. The inmates of many a palatial residence have been suddenly stricken down from inattention to a defective drain, or soil pipe, or other source of disease lurking in the generally neglected cellar. The sun and air must, then, enter also the cellar, as must also the eyes and nose of the proprietor, or the deleterious effects of this neglect will be fearfully apparent.

SUNSHINE.

Sunshine is of no less importance than pure air. Dr. Bowditch's statistical tables go to show the intimate relation between the occurrence of consumption and its allied diseases, not only in years where there have been an unusual number of cloudy days, but in places naturally, and in houses designedly, deprived of the free access of the sun's rays. Some time ago this was signally illustrated by a district of Paris, where the people were pallid and filthy from the absence of sunlight in their dwellings; the government interfered and shut up the places. There are not a few tenement houses in all our large cities where such a procedure would throw light not only upon moral and physical nastiness, but upon the cause of disease and death among the poor foreign population swarming and festering in our midst.

Let the sunlight into your houses, then, and drive away the mould and mustiness which lurk in your halls and closets, and even in your parlors; far better that the carpets, and chairs, and curtains should fade, than that the rosy tints of health should disappear from the lips and cheeks of your children. The rays of the glorious sun are necessary for

vegetable and animal growth, and above all necessary for the healthy growth of the human being; open, then, your curtains and blinds, and see how quickly the sun will change the atmosphere of your house. bringing light and warmth into musty corners, vivifying the air of every room, reddening the cheeks of the pallid children, and giving to every member of the family a vigor before unknown.

A man requires ten cubic feet of air every minute, in order to supply an amount of oxygen sufficient for the wants of the system. The air enters the lungs full of oxygen, it leaves them without an atom, hence that which leaves the lungs is so wholly unfit for breathing purposes, that if re-breathed, unmixed with any other air whatever, it would cause instant suffocation. This unnutritious air is so very light that when out of doors it rises instantly toward the clouds, as may be seen any frosty morning; but when a person is in a close room, this unwholesome air mixes with that which surrounds it, and in a few moments the whole air of any room becomes contaminated, and this contamination becomes more aggravated, more virulent at every breath, and this is the reason of the greater rapidity which persons and animals recover from terrible wounds when they have to lie out in the open air, with nothing but water to drink and roots and berries to eat for days together, when in fact they would certainly have died if they had had all the comforts of home, fireside, and friends. It is estimated that in the course of fifty years, a man in round numbers, breathes five hundred millions of times, taking into his lungs one hundred and seventy tons weight of air, and discharging therefrom twenty tons of deadly carbonic acid gas. The great aim of those who have an ambition to live long and healthfully should be to re-breathe as little of this pernicious gas as possible, and to have as many as practicable, of the five hundred millions of breaths to be drawn, to be taken from the exhaustless store house of "all out-doors." If the circumstances of one's life should make it necessary to spend a large portion of existence indoors, then it should be a con-

stant aim and study to have a good ventilation, to facilitate the egress of the bad air, and that its place should be supplied by that which is pure, invigorating, and life-giving.

PURE AIR.

Ventilation.

Prominent among the causes of disease is a deficiency of pure air. The function of respiration is known to consist mainly in removing from the blood the carbonaceous results of the waste of our tissues, by permitting them to combine with the oxygen of the air we breathe, and to be exhaled in the form of carbonic acid. It is easy to see that in a crowded and ill-ventilated room, without the adequate supply of oxygen, this carbon cannot be eliminated in sufficient amount; in consequence of the impurity of the air, and the retention of carbon in the blood, there arise difficulty of breathing, feelings of oppression in the region of the heart, headache, and even faintness. Important as is pure air in the occasionally visited churches, theatres, and places of amusement and instruction, it is still greater in the factory and workshop, where men and women pass the whole day, and in the chambers where they sleep.

The great neglect of physical education, so obvious in the treatment of children, is carried still farther by the absence of all sanitary arrangements in the houses and shops of the mass of the people,—showing that architects and builders know nothing or care nothing about the requisites for the health of the occupants. Compelling workmen and workwomen to remain for many hours daily in a close, unventilated room, is not only cruel, but is a positive and very active influence in undermining the health and diminishing the power of a community. Most of our factory operatives are females, in whom the physical degeneration, from this cause principally, is painfully manifest; this is one of the “woman’s

wrongs " that deserves the profound and immediate attention of philanthropists.

Sleeping apartments.

Most of civilized human races pass about half their lives in bed, so that the manner in which people sleep is a matter of great importance; yet very little attention is paid to it. When practicable, one child, and indeed one adult, is all that one bed ought to contain; and if each bed had its separate apartment it would be better still; the emanations of the human body, much more than the trifling excess of carbonic acid in the air which has been repeatedly breathed, are the sources of impurities in chambers, and spread the seeds of debility and disease. A sleeping room should be well aired by a fire-place kept open day and night, or by some means of ventilation beside the windows; with all the modern theories and pseudo-science of ventilation, there has been no great improvement on Benjamin Franklin's way of slightly raising the lower and dropping the upper sash of a window, so situated that the sleeper shall not be exposed to a direct draught. Mechanical contrivances may answer for public buildings where power is available; but for domestic and every-day use some simple modification of a chimney-top, depending for its action on the natural ascensional power of heated air, assisted by the wind from whatever quarter it may blow, must be depended on,—such a one, for instance, as the Boyd cap, which seems to be simple, effectual, cheap, and not liable to get out of order.

Small sleeping rooms.

A large sleeping room is but little better than a small one unless there is a supply of fresh air for it, and egress for spoiled air; and on the other hand, a small room where there is a constant change of air is nearly as good as a large one.

The supply of air without draught is more important than the size of the room; still a large sleeping room well ventil-

ated, is most desirable, and children should never be tucked away in small unventilated rooms.

It must also be remembered that lamps, gas-burners, and whatever is in a state of combustion in a room, are consuming oxygen and evolving carbonic acid, and to that extent using up the air we require for the purification of our blood; it is estimated that an ordinary gas-burner consumes as much oxygen as a healthy adult. The amount of air we introduce must, therefore, be ample for all these additional consumers in the household.

We have an unerring guide in the sense of smell; whenever, therefore, we put our noses into a room, and our sense of smell tells us of the presence of this unmistakable organic impurity, we must retreat at once; if we enter, our guide soon deserts us, and we breathe the poisoned air without apparent harm; as familiarity with vice soon blunts the moral perception, so remaining a short time in foul air blunts our sense of smell, and we unconsciously, perhaps defiantly, expose ourselves to the germs of various diseases which are always floating in the air.

The nose acts like a custom-house officer to the system. It is highly sensitive to the odor of the most poisonous substances. It readily detects hemlock, henbane, monk's-hood, and the plants containing prussic acid, it recognizes the fetid smells of drains, and warns us not to smell the polluted air. The nose is so sensitive that it distinguishes air containing the 200,000th part of a grain of the otto of rose, or the 15,000,000th part of a grain of musk. It tells us in the morning that our bed-rooms are impure, and catches the fragrance of the morning air, and conveys to us the invitation of the flowers to go forth into the fields and inhale their sweet breath. To be led by the nose has hitherto been used as a phrase of reproach; but to have a good nose, and to follow its guidance, is one of the safest and shortest ways to the enjoyment of health.

Baked air.

When the air is passed through a hot furnace, and heated to a high degree, and then passed into a room, such air should be called baked air, and it is about as bad a form of lung food as can be taken. Nothing but headache, faintness, drowsiness, and dullness can come from its use.

How house air is spoiled.

The following facts will show how the air in houses becomes contaminated :

1. An adult person consumes 34 grammes of oxygen per hour, a gramme being equal to 15 grains.

2. A stearin candle consumes about one-half as much.

3. An adult gives off 40 grammes per hour of carbonic acid. A child of 50 lbs. gives off as much as an adult of 100 lbs. weight.

4. A schoolroom filled with children will, if not well ventilated, at the beginning of an hour, contain 25 parts in 1,000 of carbonic acid, at the end of the first hour 41, at the end of the second hour 81.

5. The air is also spoiled by the perspiration of the body, and by the volatile oils given out through the skin. An adult gives off through the skin in 24 hours from 500 to 800 grammes of water mixed with various excrements, poisonous if breathed.

6. A stearin candle gives of per hour 0.4 cubic feet of carbonic acid, and 0.03 lb. of water.

7. Carbonic oxide is a much more dangerous gas than carbonic acid, and this obtaining entrance to our rooms in many ways, through the cracks in stoves and defective stove pipes, or when the carbonic acid of the air comes in contact with a very hot stove and is converted into carbonic oxide. The dust of the air may, on a hot stove, be burnt to produce it; or it may flow out from our gas pipes when the gas is not perfectly consumed.

8. Another form of air injury is the dust of a fungus growth which fills the air in damp and warm places.

9. Accidental vapors are the crowning source of air-poi-

soning. These are tobacco smoke, kitchen vapors wash-room vapors, and the like.

10. When we heat our houses and close them from outside air, the heat turns the mixture into a vile mess unfit for breathing. The only remedy is ventilation and free currents of outside air.

Carbonic oxide is a colorless and almost inodorous gas, containing one part of oxygen less than carbonic acid. It may be seen burning, with a beautiful flame, on the top of a newly fed coal fire. It is much more poisonous than carbonic acid, and must be guarded against with care. It forms abundantly in our coal stoves, and presses through their cracks and joints into our rooms. It escapes from the gas flame when the pressure is so great that more gas flows than can be burned; it forms and escapes from charcoal burning in the open air or in fire-places, and may escape into sleeping-rooms through open stove-pipes or broken flues in chimneys, or half burning wood behind the ceiling, in this way greatly injuring those sleeping therein. Even the ordinary smoke that escapes from smokey stoves and fire-places may contain it, and persons thus breathing it may be injured thereby. One of the effects of carbonic oxide on the blood is, that its power to take in oxygen is greatly lessened, and the separation of carbonic acid from the blood is greatly retarded.

Schools and health.

Professor Virchow, in an article translated for the *St. Louis Medical and Surgical Journal*, enumerates the following known injurious agencies and causes of diseases pertaining to schools, to which attention should be directed:

1. The air in the school-room, the quality of which is determined by the size of the room, the number of pupils, the mode of heating, the ventilation, moisture of the floor and walls, dust (cleanliness).

2. The light, as determined by the situation of the building and room, the size of the windows and their relation to the desks, the color of the walls and surroundings, artificial light (gas, oil).

3. The sitting in the school-room, especially the relations of desk and seat, size of the seats, their arrangement, duration of sitting.

4. Bodily exercise, especially playing, gymnastics, swimming, their relations to sitting and to the purely mental labor, their arrangements and superintendence.

5. Mental exertion, its duration, variety, the individual amount, the arrangement and duration of recesses and vacations, the extent of home and school exercises, the date of the commencement of obligatory attendance. etc.

6. The punishment, especially corporeal.

7. The water for drinking.

8. The privies.

9. The means (implements) of instruction, especially the choice of school-books (size of type), and objects of illustration.

Charcoal is most valuable for the construction of ventilators. These are simply wire-gauze boxes of proper shape and size, filled with coarsely powdered charcoal. They may be placed in an open window, or other opening for ventilation. The foul air passing through them will be deprived of its poisonous freight, and enter the room perfectly pure and sweet. They are often of great advantage in situations where the external air is exposed to an irremovable source of impurity. They may be placed, also, over the street openings of sewers. If the charcoal be kept dry, it will retain its virtues a long time. Respirators constructed in a similar way may be worn over the mouth of persons who are necessarily exposed to a vitiated atmosphere.

Charcoal may also be used for purifying sick-rooms, by exposing it in shallow trays to the air of those localities. Or it may be thickly strewn over putrescent animal or vegetable matter. It should always be kept as dry as possible. It has little or no disinfecting power when immersed in liquids.

Finally and most important of all is the effect and influence of the poisonous air that escapes from sewers. Geo. Preston Brown in a late work on "Sewer-gas and its Dan-

gers," gives the following valuable ideas. There is reason to believe that in large cities sewer air, or as it is more commonly known, sewer-gas, is the source of more physical suffering, and the cause of more diseases than any other one thing. If this is true, the contamination by sewer-gas of the air which people breathe, is a calamity indeed, and, that the statement is true, there is no doubt.

Wherever there are sewers it is certain there will be sewer-gas. If confined within the sewer, or permitted to escape in the open air, it can do no harm. In the first instance it is imprisoned and helpless; in the second, it is robbed of its power by the oxygen of the atmosphere. It is only when it finds its way into the houses, drives out the pure air, and is unconsciously taken into the lungs, there it becomes the enemy of the human race. Sewer-gas is not often instantaneous in its effects, but it is none the less certain. It may be the source or promoter of all the so-called zymotic diseases which is defined as any epidemic, and epidemic, contagions, or sporadic affections which is produced by some morbid influence acting on the system like a ferment." This technical definition is not so comprehensible as the plain statement that zymotic diseases include typhoid, typhus, scarlet, cerebro-spinal and malarial fevers, small-pox, measles, diarrhœa, dysentery, cholera, cholera morbus, cholera infantum, croup, diphtheria, whooping-cough, puerperal disease, and some others. A prominent writer says: "If we look for the causes of the mortality of diseases in our cities, we find it principally in sewer-gas poisoning. Other causes operate to swell the total, but to bad plumbing may be attributed the prevalence of pythogenic pneumonia, peritonitis, inflammatory rheumatism, malaria, and the diseases before mentioned, as other acute diseases which are almost epidemic in our large cities.

Sewer-gas does not always kill. It poisons the blood of once healthy men and women, and destroys or cripples their capacity for business or enjoyment. It robs men of ambition and women of beauty. It paves the way for specific diseases

which would otherwise never have sent strong men to bed for months. There are those in large cities who have fled from it—whose lives were imperiled by its presence; years have passed and the poison has not yet been driven out of their veins.

There is said to be a distinct, odorless and non-analyzable element, which has been denominated sewer-gas, and which is as deadly in its effect, as sulphuretted hydrogen. If this is true, it is seldom met with. The term sewer-gas is more commonly and properly applied to the pent-up foul odor which may be found in any sewer or its conductions. It is easy to understand that this gas is laden or saturated with particles of decaying animal, vegetable, and excrementitious matter which finds its way into the sewer. If this gas is breathed into the lungs, thus laden with poison, the blood must of necessity be contaminated. Further than this, the air which escapes from the sewer may bear with it the germs of contagious diseases, and deposit them where least expected. It is possible, it is probable, that the blood poisoning resulting from the breathing of sewer-gas is due to chemical changes in organic matter which has been taken into the lungs. This may come from the sewer catch-basins, drains, privy vaults, or waste-pipes. Sewer-gas, or its equivalent, is generated in an out-door privy vault, but it comes so soon in contact with the surrounding atmosphere that it is rendered comparatively harmless. The air which escapes from sewers in the houses is dangerous because it is not diluted, nor disinfected by pure air, and because its confinement increases its potency. If all sewers were open at the top throughout their entire length, there might be no dangers from the exhalations, except possibly from the germs of contagion which may have been carried into the sewers by water used in bathing the bodies of the sick. But this danger could not be so great as that which to a limited extent attends the breathing of the atmosphere which has swept through a sick room, and which many people do unavoidably, and with apparent impunity breathe. In some cities of Europe sewage is conveyed away

in open gutters, without serious discomfort or danger. In other cities there are often man-holes leading to the sewers, and the gases generated are allowed to pass off freely and without danger. Sewer-gas is to be feared when it insidiously and persistly finds entrance to houses, offices, or buildings of any description where people live or work. There are some people who believe it can do no harm; others know by sad experience that it is destructive of health and robs life of enjoyment, but they imagine that they are helpless against it. Again, there are many thousands suffering from its effects, and they are entirely ignorant of the fact. In mercy to this third class the warning note should be sounded, and for their especial benefit, as well as for those who know no remedy, the means for shutting sewer-gas out of houses, if there are any, ought to be made known in the fullest and widest possible sense. No man would build his house over an open cess-pool, and yet in a city where there are public sewers, houses are built over a hidden cess-pool a thousand times more dangerous than one above ground could be. Into it empty ten thousand drains, which in turn are connected by waste-pipes and soil-pipes with wash-basins, kitchen sinks and water-closets. Into these are deposited the waste of human bodies and the liquid waste of kitchens, laundries, and lavatories. Through the waste-pipes of the houses this liquid filth is conveyed directly to the street sewer, into which are also poured other liquid abominations, which often hold in solution matter still more objectionable. Does any one need to be told that this must be the source of a gaseous exhalation, poisonous as well as foul. The pipes which connect a house with the sewer, may perform their duty well enough as drains, but they are practicably serviceable as ventilating shafts for the hidden cess-pool, the sewer. A man may pity an unfortunate victim of small-pox, diphtheria, or contagious fever, but he would not consent to receive the one afflicted into his home at the risk of the lives of his own family, but if there is danger from contagion by personal contact. there is also reason

for alarm lest the germs, or specific poison, of disease drawn into the public sewer, and carried from one end of the city to another, may be borne into houses of distant neighborhoods, through drains and waste-pipes, on the wings of an invisible sewer-gas. Before, and since the time of Martin Chuzzlewit, men have undertaken to live in swamps and marshes in obedience to the demands of an apparent necessity. Swamp malaria prostrated the imaginary Chuzzlewit and his faithful companion, as it has many others similarly situated. The sewer cess-pool is not essentially different from the swamp, ordinarily that for which the former is responsible is slower in action, although oftener fatal or more lasting in its effects.

There is nothing about which the people of the city seem to know so little as its sewerage. There is nothing relating to the comfort and healthy condition of a habitation with which any one of mature years should and might be more familiar. House-drainage, an adjunct of sewerage, is next in importance to the construction of the four walls of a house. It is the last thing which an architect considers. If waste water "runs off" he is satisfied. But it is not sufficient to know that the waste will be carried out of sight; there should be no doubt that it reaches the sewer, and that there is no leaking or spilling along the way. There should be such appliances in and about the pipes as will prevent the return of sewer-gas to the rooms of a house, and this fact should be positively known.

It is an easy matter to shut sewer-gas out of a house especially if some intelligent attention be given to the matter when the house is constructed. The trouble is that houses are built over sewers and connected with them with as much unconcern as though they were streams of pure water. Unfortunately sewers and house-drains are out of sight. A man may easily settle the question whether decaying garbage, in or about his premises is responsible for obnoxious smells, but he can not of his own knowledge say that they come from a defective drain or sewer. He can learn something of

the architecture and mechanical construction of a house by observation and say that his shall be built thus and so, but he can not so readily learn how a house should be drained, even if the thought ever occurred to him that house drainage consisted of anything further than getting waste matter out of sight. He has possibly heard something about traps and pipes and drains, but does not know where to look for them and very likely would not know their use when found. A plumber's advice and services are paid for but often to no good end. At the close of the year the occupant foots up his medical and funeral expenses and wonders why fate has dealt so harshly with him. There is a repetition of his experiences during the following year; at length the house is sold or bargained away for another which may prove to be a better or a worse habitation.

A man who lives in a rented house has the advantage of the privilege to change his residence once a year, but he is continually getting into houses that were built to make money out of, and not to live in. These are apt to be deficient in everything except outside appearance; it is merely an incidental circumstance that somebody is to occupy them. There is no part of a house in which imperfect work may so effectually escape detection, as the drainage; hence there is little good work in the construction of the drains.

So long as the man who builds his own house does not know how sewerage should be properly disposed of, it will have defective drainage and he will be troubled by sewer gas. So long as a tenant of a house is not able when he rents to determine whether the drainage is properly constructed, as he is that the house itself is secure, commodious and warm, those who have money to invest will continue to construct houses better adapted to ventilating the street sewers than for occupation. A man might better put his family into a shed in which they would suffer from cold in winter and heat in summer, than into a marble front mansion, the waste pipe of whose kitchen sink is not securely trapped

and ventilated; better for a family to live on a housetop where poisonous gases are sure to be disinfected by pure air, than within the house, although it has all the conveniences which human ingenuity can devise and yet have defective drains beneath it.

All this finds confirmation in what Prof. C. A. Lindsley of the medical department of Yale College, has recently written. He says: "By the commingling in the sewer of such immense quantities of matter, in ever changing proportions and kinds, and in all stages of putrefaction; the sewer may be considered in the language of the chemist, as a vast test tube of prodigious proportions, stretching its stupendous length, beneath the surface of the highways, and ramifying its branches into all our houses. The activities of the liquid filth poured into it, are not merely those of motion passing down a declivity, but they are activities of a widely different nature. Silently, persistently, energetically, and inevitably, the laws of chemical action are set in operation, and among the products of the changes resulting from the contact with each other of such various matters are the formation of noxious vapors recognized under the general term of sewer gas. Now as sewer gas is lighter than common air and flows upward as naturally as water flows downward, the immediate consequence is that the pipes leading from the several apartments of the house, become the conduits by which the sewer gas is conducted directly into those apartments, and sewer gas is filth—often in the most dangerous form; and so our fellow citizen has failed of doing what he proposed, but instead has really provided admission for a far more dangerous form of filth, than he had before, viz: the gaseous products of sewage putrefaction. * * * Thus it is quite evident that the sewers constructed for public use to afford to our citizens the means of removing out of, and away from their houses the filth of housekeeping, may ignorantly be so used that while they do secure a prompt and convenient removal of such filth, they do also inject as it were into the very midst of our homes a form of filth more

dangerous than that removed, and so subtle and intangible, that its presence is not even detected, and yet so often laden with the germs of disease, that diphtheria, scarlet fever, typhoid fever and other fatal maladies are the sure event to those who dwell in such air poisoned houses.

Does not consistency demand that the authorities which have provided sewers to protect the peoples' health should also provide that said sewers should not be a cause of danger to the peoples' health. And yet there is no law in Connecticut forbidding our fellow citizens to commit suicide, and take the lives of their families or prohibiting landlords from jeopardizing the lives of their tenants through exposure to the fatal influence of the public sewers. It is a reproach to the intelligence of the civilization amidst which we live that some guard against this peril does not stand prominently upon the pages of our sanitary laws. If nothing be done by the authorized powers for the safety of those who are already in peril from their exposure to sewer gases, surely it is a species of crime to permit property owners, through ignorance, or for any other reason, to go on unrestrainedly putting additional numbers of our fellow citizens in danger by any further connections of houses with the sewers without adopting the safe-guards necessary for their protection."

EXERCISE.

We come now to the subject of exercise as necessary to the health ; and to the proper use of gymnastics, to those engaged in sedentary pursuits.

On the subject of physical culture very little is known by the people at large ; and what is known is far from being rightly appreciated. People in general take little or no interest in any subject which more immediately concerns their health, until once they are conscious of having lost it, when they are only too anxious for its recovery. That a very large number of

the disorders of the human system which afflict mankind are due to careless and culpable indifference, or to ignorance of the laws of life, there can be no question. Everywhere the physical laws of our being are violated, and the sufferings incident to such violation most likely charged to *Providence*, while the sufferers, now anxious for restoration to health, but unwilling to follow the laws of nature and await her healing processes, resort to drugs, the patent and quack remedies which flood the land, and thereby not unfrequently perpetuate their sufferings, and materially shorten their lives; in plain English, drug themselves to death.

No one who has paid any attention to the subject of physical culture, can doubt that the right use of properly regulated exercise must have a most beneficial influence, not only upon the due development of the human body, but as a sanitary measure in preventing certain forms of disorder, and in many cases as a curative process.

One of the simplest forms or modes of animal motion is walking. Walking ought to consist of a succession of steps, not of leaps, which constitute running. Fair walking is generally called "toe and heel," and one foot should always be on the ground. The steps are taken as much as possible from heel to heel, which part of the foot must touch the ground first, and be firmly dug into it. The ball and toe of the foot should not be on the ground for any perceptible space of time; if they are dwelt on the walker loses a certain amount of time in each stride, besides causing the knee to bend by bringing the weight of the body on the toes, which are unable to bear it. The latter point is one of the great differences between running and walking; in the former all the weight of the body is thrown on the toes and balls of the feet, and in the latter on the heels.

At each stride the loin and hip corresponding to the leg which is being put forward, should be twisted well round, the right loin and hip towards the left, and the left loin and hip towards the right. By this means the walker is enabled to put his feet down almost in a geometrical straight line,

one in front of the other, and thereby gains additional length of stride. As regards the upper part of the body, the arms must be kept well up and inclined outwards from the chest, with the elbows slightly bent—since in fast walking the arms perform almost as important functions as the legs. Each arm must be swung across the chest, and the shoulder well lifted at the same time in unison with each alternate stride. The object of this motion is to raise the weight of the body off the heels, and thereby enable the legs to take a quicker stride. Above all things the shoulders must be kept well back, the chest out, the whole body as upright as possible and the knees perfectly straight.

As an exercise for bring into play all the muscles of the body, no single exercise can equal it, since in fast walking, not only the muscles of the feet legs, and loins are used, but those of the ribs, chest, shoulders, and also arms, while they work across the body.

As already pointed out, every judicious series of exercises will imply a training of the organs of respiration and circulation. Walking and running are those which perhaps most readily effect this, as they do not interfere with the upper limbs, and hence they are chiefly employed for improving “the wind” as it is called, for when the arms are brought into play for any powerful effort, say pulling at or lifting a heavy weight, if there be great resistance, the looker-on will speedily observe the performer become redder and redder in the face till he is almost purple. The reason of this is, that the muscles of his arms having proved insufficient to effect the removal of the body causing the resistance, he has called a new set of muscles into play by fixing his chest, so that during these powerful efforts no breath can be taken. Consequently, as the blood is rapidly undergoing change in the rigid and contracted muscles, and as the heart continues to drive the blood thus fouled through all parts of the body, it not being aerated by passing through the closed lung, the surface darkens, and the blood which should pass through the lung accumulates outside of it, the two together produc-

ing the reddening and darkening of the features. This is straining the lung, not exercising it; It is equally injurious to both lungs and heart, for both are alike strained, the lungs to resist, the heart to drive on, the blood current. Hence, for gymnastics of the lungs and heart, exercises which do not involve the upper limbs should be selected.

Sydenham, an English physician, had such confidence in exercise on horseback, that, in one of his medical works he says: "If any man was possessed of a remedy that would do equal service to the human constitution with riding gently on horseback twice a day, he would be in possession of the philosopher's stone."

Rowing is a very useful and healthful exercise if not overdone. There are two systems of gymnastics in use; the heavy, which includes the use of all the apparatus pertaining to a complete gymnasium; and the light, known as the "Dio Lewis System," or "Musical Gymnastics." Both these systems have merits peculiarly their own, while in some respects the one may be regarded as the complement of the other.

In training for any particular purpose, for example the attainment of great strength, the heavy is of the first importance; and where practicable, should find a place in connection with every college, in every city, town and community. The light is invaluable, however, as a preparation to the heavy, and as a system which is most admirably adapted to the use of women, and the youth of both sexes; which the strong, the weak, the old as well as the young, can practice with amusement, pleasure, and profit.

"Coupled with the influence of music it is more elevating, ennobling, refining, producing cheerfulness, and taking away fatigue." "In relation to health, strength, and general bearing, light gymnastics are better than any other means of exercise." "A ready use of the muscles, ease, grace, self-possession, a proper walk and carriage of the body, are no small accomplishments," and these may be easily and readily acquired by a judicious practice in the use of this system.

“They develop the chest, strengthen the lungs, and improve the voice; they strengthen the muscles that support the spine, correct constipation, help digestion, warm the extremities, give tone to the muscles about the hips, and vigor to the whole being.”

A work and a series of apparatus has been issued by Dio Lewis, which will be found useful in the physical training of boys, girls, or invalids. The apparatus is contained in a small box, and consists of a pair of light wooden dumb-bells, a pair of very light Indian clubs, a long wooden rod, and a pair of wooden rings,—the last for combined exercises.

For exercising certain definite groups of muscles, having a particular object of training in view, and under the direction of a surgeon, a gymnasium with fixed apparatus will be found almost indispensable. But for ordinary purposes nothing more is wanted than what we have mentioned, light dumb-bells, light Indian clubs, and a rod; and, indeed, it may be said that the motion of the body itself, without any extra artificial resistance like that afforded by dumb-bells, Indian clubs, and such like, is quite sufficient for physical education.

Now it is quite clear that the exercise which would be calculated to fit a strong hardy man for the boat race, would be altogether unsuited for a tender girl who has a tendency to stoop. Hence it is good to speak of light and heavy gymnastics, the former adapted for the weaker class of learners, the other for those of stronger frames, and more mature years. Further, we may classify gymnastic apparatus into movable and fixed; and we may deal with exercises specially intended to develop the upper parts of the body, and exercises specially intended to develop the lower limbs, as well as those which affect both.

Next to walking for the girl, is dancing; this brings into action a great part of the muscles,—indeed all except those of the arms. The benefit of dancing is counteracted in balls and crowded assemblies by the impure air, mental excitement, eating and drinking, and unavoidable exposures; but

at home there is no pastime more becoming the domestic circle, more beneficial, or more innocent.

A lady once consulted the eccentric John Abernethy respecting a nervous disorder, the particulars of which appeared to him so whimsical, that he interrupted the tedious details by holding out his hand for the fee. A one-pound note and a shilling were placed in it; he returned the shilling to the lady, with the exclamation, "There ma'am! go and buy a skipping-rope—that is all you want." And many a young woman in America may profit by his advice.

Teachers, above all things, says ex-President Hill of Harvard College, should have regard for the physical capacities of children. No machinery is so delicate in its structure, or is called on to produce work so fine, as the brains of school children. Their capacities of endurance are very limited at the age when the faculties are developing. There is more danger to be apprehended from long continuance in study than from close application for a brief period. In this particular the half is better than the whole.

As gymnastic exercises are so powerful for good when properly directed, they are as powerful for evil if injudiciously performed. Physical education, like the practice of medicine, should not be in the hands of empirics, ignorant of the structure, and functions, and capabilities of the human body in its various constitutions; but it should have its learned professors, anatomists and physiologists, and physicians, and be elevated to the rank of intellectual and moral discipline.

Exercise, then, by increasing muscular action, quickens the circulation of the blood, introduces more air into the lungs for its purification, facilitates all the processes of nutrition and secretion, creates a demand for food to supply the waste of tissue, and provides for the healthy performance of every animal and organic function.

Physical culture.

Perhaps I should say something here of that other physical culture which has become a mania in the Northern

States; of those wonderful base-ball players who break their fingers and sprain their ankles; of college boys who "train down" for boat-races, get heart disease by hard tugging at the oar, and die innocently young with startling suddenness; of "walkists" who esteem a leg as better than a locomotive, and of fancy navigators *qui trans mare currunt* in small boats and get drowned. But all these are violations of what is the pivotal idea of whatever of value there may be in this—COMFORT. Athletism is not the end and aim. It is only the means to a high Christian culture—the development of the sound mind in its necessary congener, the sound body. When we see a pack of school-boys in their wild play, exercising in the gymnasium, roaming fields and woods, or subjected to military drill, we can understand it. All they do lies in the channel of enjoyment, of amusement, happiness, and gratification of an honest pride. It is comfort, and that within proper bounds; not the false enjoyment which attends a debauch and is atoned for by a headache; not the pride which glories over a victory won by boat or ball at the cost of mutilated limbs or overstrained hearts. Good health, sound minds, pure hearts, true religion—these are the essentials of comfort.

Before giving a little space to the two forms of gymnastics with Indian clubs and dumb-bells, we insert a very able article from the *Westminster Gazette* upon the abuse of physical culture.

"Those who have gone through the severest training, become, in the end, dull, listless, and stupid, subject to numerous diseases, and in many instances the ultimate victims of gluttony and drunkenness. Their unnatural vigor seldom lasts more than five years. It was especially remarked by the Greeks, that no one who in boyhood won the prize at the Olympic games, ever distinguished himself afterward. The three years immediately preceding seventeen, are years of great mental development, and nature can not at the same time, endure any severe taxing of the physical constitution. Prudence, therefore, especially at this critical period

of life, must ever go hand in hand with vigor, for the evils of excess outweigh by far the evils of deficiency."

We are always going to extremes in education, as well as in politics and theology. The absolute neglect of physical development in the past generation we see followed in this habits of exercise which threaten to make us a people of by athletes and cripples. Not content with a rational use of the gymnasium, under the supervision of a teacher versed in physiology, developing *pari passu* the muscles and the intellect, as in the German universities, our youth aim each to be a Hercules, willing to be dunces if their arms and loins be strong. Hence the ball, and cricket, and boat-clubs; hence the huge dumb-bells and Indian clubs, which strain and fatigue the muscles, and lay the foundation for many diseases of the limbs and internal organs. There was a time when hernia, or rupture, was principally confined to the laboring classes, among whom it is so common that it is safe to say, that one in every fifth man you meet is affected with it in some degree; now this infirmity is increasing among the students, many of whom lay the foundation for a life-long disease in the ill-judged exercises of the so-called "manly sports."

We are not all the same, either mentally or physically; and exercise, like food and study, must be graduated according to the power of the individual. This distinction is generally overlooked; and the puny boy emulates the strong, subjects himself to the same vigorous efforts, and finds himself with distorted joints, rupture, and incipient disease of the heart and blood-vessels, while his more athletic rival becomes a better conditioned animal by the exercise. It is time, now that a trained boat crew, and an unsuccessful one at that, is received with public dinners and by city delegations,—with the honors of illustration in pictorial papers and commendatory letters from clergymen,—with the fulsome flattery that their four-mile rowing match will be a powerful agent in maintaining the *entente cordiale* between America and England—to ask ourselves the question if we are not

carrying to a ridiculous extreme the power of muscle at the expense of brain and good health?

All physicians and physiologists are aware of the effects of rowing, as an exercise, on the heart and pulse. These effects have been recently carefully examined by Dr. Fraser, of Edinburgh, by means of the "sphygmograph," an instrument invented in France, which produces a self-written record of the swellings and contractions of the arteries; the delicate movements of these vessels, which the finger can not detect, are thus registered in a series of curves or waves, by a pencil on a strip of paper moved by clock-work. The "sphygmograms" of a crew of healthy persons before leaving the boat-house, and immediately after its return, are very different. The tracings show clearly that an extremely large quantity of blood is, in rowing, circulated with great rapidity, a condition of the circulation essential for the continuance of prolonged and severe muscular exertion.

The effect of such a condition upon persons suffering from, or liable to, peritoneal or organic diseases of the heart, can be easily conjectured. There can be no doubt that many incipient diseases of the heart and blood-vessels are rendered active and dangerous by the violent exercise of rowing, and that much discomfort, and premature death are the result of this mania injudiciously and intemperately indulged in.

As boat crews do not, and can not here submit themselves to "sphygmographical" examination, and thus enable the predisposed to heart disease to retire in time to prevent further mischief, it may be a wholesome caution for the youthful oarsman to stop and consider, especially if violent exercise produces an uncomfortable feeling in the heart and lungs, whether he will indulge in anything more than a moderate pull.

The effects of rowing on the circulation do not differ from those of many other forms of muscular exercises. It is the violence of such exercise, whether with the oar, the bat, or the Indian club, which is the dangerous element. While it

is safe to row or play ball simply for amusement, it may be eminently dangerous to engage in a boat-race or a ball match.

Enough has been said to show the important bearing upon health that exercise has, and as a brief summing will quote from Loomis :

“In a large proportion of the forms of human pursuit there is bodily activity enough for maintaining the health of the several organs. But some of these forms, while, they are useful and even laborious, give exercise to only a small proportion of the organs. Thus the seamstress uses only the hands, the student only the brain, the accountant only the brain and hand.

It becomes necessary that some kinds of exercise be resorted to which have no other real object than the exercise itself. If, however, some other interest can be connected with it, as ball, boating, riding on horseback, or gymnastic feats, still salutary exercise is secured. Some less exciting occupation, as walking, or hard labor, will, however, if entered upon with a cheerful mind be of equal service.

It should, however, be borne in mind by all persons who follow sedentary pursuits, that active exercise is essential to the maintainance of the constitution unimpaired.

Physical activity is a necessary condition of the physical health. Such activity induces a greater amount of respiration, more action of all the muscles of the chest and abdomen. The action of the heart is increased, and thus the circulation is augmented. With this increased respiration and circulation, all of the powers are stimulated, digestion is promoted, muscular strength is increased, and mental activity is encouraged. The exercise should, then, be continued till this energetic circulation is established, generally till sensible perspiration begins to appear.

PROCREATION.

PRO AND CON.

Certainly I should not feel to have relieved myself of obligation to my readers were I to ignore a subject of such importance ; so important, indeed, that the all-wise Creator gave it as his first command unto creature, Man: "And God blessed them, and God said unto them, 'Be fruitful, and multiply, and replenish the earth'." I shall not attempt to consider, neither in detail nor in general manner even, the subject of this chapter, but briefly, and very briefly too, a few points of special interest. First, where there is desire for increase, without its consummation ; arising from causes for which, the parties interested may or may not be to blame, either from unnatural or natural causes ; also some considerations of proper means for the *prevention of conception*, and the *procreation of male and female children at will*. This subject is introduced in this portion of the work from the fact of its importance being so momentous that these cases should be treated only by the skilled physician.

IMPOTENCY.

Derived from the words *in*, not, and *potens*, capable. The term as used implies, incapacity for sexual intercourse—*coitus*. By some it is held to mean only incapacity for procreative sexual intercourse. This condition may arise from natural causes, such that may be overcome by proper treatment, or it may arise from other causes, the sufferer the victim of indiscretion. Among other causes are the following ; a natural decline of functional power in the organs from inaction ; sudden and severe outbursts of disgust or anger

may quickly, and possibly forever, arrest the secretions of the glands; attacks of apoplexy; severe injuries to the head; diseases or injuries of the spinal cord; want of self confidence is not an infrequent cause; excessive indulgences, natural or unnatural; constitutional diseases are sometimes the cause; so also may it arise as the result of certain drugs. It has been known to occur in middle life with no cause perceptible.

STERILITY IN THE FEMALE.

Arises from the want of those powers necessary to procreation on the part of the female only. Some years ago I caused to be published in a number of the medical journals of the day, and in circular form, a series of questions which I sent to many of my medical brethren for the purpose of obtaining from their private case-books, data containing their experiences relative to the cause and cure of this condition in the female. In response I received many curious and interesting experiences of practical value. In our courts of law, it is said, there are more applications for divorce entered by childless wives, charging the husbands with non-procreative power, than by husbands charging their wives with sterility. This has led to the general opinion that sterility is more frequent on the part of the male than the female. This, however, is in error. Rehrer estimates the husband to be in fault only "in about one-fourth of the cases of *Sterilitas matrimonii*."

In the female the ovum is essential for procreative power. In the functional exercise of this power on her part, there is necessary, in normal condition: *a*, the oviparus organs; *b*, the oviducts; *c*, the ovigerent organ, and *d*, the copulative organs. For the sake of brevity we may add that some females have ever been in a condition of sterility, while on the other hand there are women who after having given birth, become sterile, hence we may have a case in which the gen-

erative function is in abeyance, the sterility being primitive or acquired, but in either case we will find the cause in one or more of the planes of the female reproductive apparatus. If it occur in the (*a*,) *ovaries*, had I space I would like to consider, at least four or five conditions of the ovaries that, without relief, would either diminish, or destroy altogether the possibility of conception ; if the fault lies in the (*b*,) *oviducts*, at least three distinct conditions ; if in the (*c*,) *uterus*, at least five ; and if in the (*d*,) *copulative organs*, at least four conditions that will so destroy or disturb the procreative function, that the woman remains sterile.

STERILITY IN THE MALE.

By some, the sterility in the male, and impotence, have been accounted one and the same. If a man know, or even believes, himself to be impotent, in my judgement, that man would commit a grave offence, certainly would not be justified, in entering the marriage covenant, save under the advice of a competent medical advisor. I speak of impotence in this connection, because a man may be aware of the fact that he is impotent, hence necessarily sterile ; while upon the other hand a man may perform the act of venery—coitus, and, possibly in a sense, enjoy the act, yet, unknown to himself, nay more, without the slightest suspicion on his part that such is the case, be, in fact, sterile. Among others, sterility among males may be occasioned by one or more of the following causes, viz: abnormal position of the generative organs, or their want of development ; obstruction in some one or more of their parts ; and by what is known to the profession as *aspermatisms*, wherein the reflex action does not culminate in expelling the collected semen. There are instances on record, not a few, where seminal ejaculation is not effected even under a prolonged act of coitus, and yet the same individuals have frequent nocturnal emissions. This leads me to speak here, of one of the results of that

most vile and filthy act, *Self-pollution, masturbation or onanism*, from *manus* and *strupro*, (to ravish by the hand). Strange as it may appear, it is a fact, nevertheless, children at the age of four years or under are among its subjects. Young people just before and after puberty, male and female; women, high minded and pure, so far as the world is aware, the minister, the lawyer, and the man of business. The marriage state is not, to all, a barrier, a saviour from the consequences of a baneful habit that works, perhaps, a more terrible and lasting injury upon the bodies and minds of its victims, than tongue or pen can express or the mind conceive. Its victims are not alone the most promising of our sons and daughters in their days of youth, but the more mature men and women of brilliant minds who, from oft repeated indulgence, are soon lost to their higher moral feelings, in whom, in fact, sooner or later, degradation of every moral sense ensues, intellect is weakened, if not destroyed utterly, health broken, existence—a living death from self-defilement. *All such cases should* be placed immediately under intelligent treatment while redemption is possible,—even those seemingly beyond hope have been restored to health and happiness.

SPERMATORRHŒA.

From *sperma*, (seed,) and *reo*, (I flow). It has been defined as a real or apparent discharge of seminal fluid, occurring without voluntary sexual excitement; some writers consider it any emission of semen without sexual intercourse, others limiting it to such cases where sexual debility has advanced so far that there is a constant dribbling of seminal fluid unaccompanied by erection, ejaculations or pleasurable sensations. This trouble is not consequent upon masturbation alone, neither to sexual excesses, but may arise from a number of causes, from which the patient is an innocent sufferer, continuing, often, from a mistaken delicacy, a victim to

wretchedness and misery. I have not space wherein to consider its consequences as affecting the circulatory system, the respiratory and digestive systems, sexual organs, brain and nervous system. Under proper treatment, by far the larger majority of those suffering from this trouble may recover.

PREVENTION OF CONCEPTION.

How many women there are who have their health broken, happiness destroyed, from too frequent child bearing. Their name is legion. To such, a proper means of prevention would indeed be a blessing. Not only is frequent child-bearing a strain upon the physical powers, but the continual wear and tear consequent upon rearing a numerous progeny, is one among the most seriously severe labors allotted to them in life. Hence in these cases it is not trenching, perhaps, in the least upon good morals, to prevent the bearing of more children than can be properly cared for, to vigorous means have been resorted to, many proving possibly, as Madame de Stael might say, "cobwebs against danger, and breastplates against pleasure." Among others a piece of silk sponge of appropriate size to which a string has been attached, is passed up to the womb before, and withdrawn after connection. The sponge may be wetted with a mixture of vinegar, one part; to three of water, or the use of an injection alone, made freely with vinegar one part to eight of water. I once heard a medical man advise that the wife, to use his expression, "spend before the husband," and pregnancy would be avoided, asserting that at that instant of excitement the womb opened and sucked up, literally the semen. Since that advice was given, Dr. Joseph R. Beck, reported in the *St. Louis Medical and Surgical Journal*, 1872, a case of *prolapsus uteri*, (falling of the womb) in a patient of great sexual passion, from which I make the following extract: "Carefully separating the vulva (external parts)

with my left hand, so that the os uteri (entrance to the womb) was brought clearly into view in a strong light, I swept my finger across the cervix (lower end of womb) twice or three times, when almost immediately the orgasm occurred, and the following is what was presented to my view: The os, and cervix uteri had been firm, and generally in a normal condition, with the os closed so as not to admit the uterine probe without difficulty, but immediately the os was opened to fully the extent of an inch, made five or six successive gasps, drawing the external os into the cervix each time powerfully, at the same time becoming quite soft to the touch. All these phenomena occurred within the space of twelve seconds time certainly, and in an instant all was as before, Now I carefully questioned my patient as to the sensations experienced by her at the period of excitement, and she was positive they were the same in quality as they were during coition." Litzman reported a similar observation. Another method is for the husband to abstain from coitus or withdraw before ejaculation, until the expiration of fourteen days after each menstrual epoch. These means, though troublesome, may save a greater subsequent trouble, and are given in the hope of conferring a greater blessing upon over-burdened mothers, than wrong to humanity in their giving.

PROCREATION OF MALE AND FEMALE

CHILDREN AT WILL.

Striking as these head lines may appear to you, the first time you clap eyes upon them, I assure you that it is no new subject that has just sprung into existence claiming consideration. It has occupied the minds and commanded the pens of some of our best and most profound thinkers and writers for centuries. So earnestly did the erudite Aristotle study

this subject that but little advances have been made upon the theories promulgated by him in his day. But it has only been of late years that savants in England and parts of continental Europe, have been conducting experiments with stock, the results of which have proven of almost inestimable value to stock raisers. Again for want of space I am compelled to be brief confining myself to a synopsis of a very able paper on the topic by Prof. John E. Van Molle, A. M., in which he sets forth the following experimental results :

I. Young, obtained from mare, cow, etc., when very young, was generally a male, when the male employed was of mature years, healthy and and strong, and had been denied too frequent copulation. Where the condition of parents were reversed, the offspring was a female.

II. Where the parents were of mature age, neither exhausted by too frequent copulation, well fed, strong and healthy, the offspring were about equal, male and female.

III. Offspring, where the female is old and the male young and strong, are genenally males ; and females in reverse conditions.

IV. Where the female, though young, had been ill fed, exhausted by labor or forced exertion, and not in pride ; the male, though old, well fed, strong and in full heat, the offspring were generally males ; or conditions the opposite females.

From this synopsis we deduce as follows : Since man is an animal with analogous physical and procreative functions, it necessarily follows that a series of phenomena having taken place in the brute, a similar set may reasonably be expected to occur in the human species, the same physical conditions affecting the human offspring. Hence to beget male children the husband should be healthy and strong, avoid sexual excess, indulge in good, solid, stimulating food, reasonable exercise and pleasant company ; the female, so far as is reasonable, for a time, the reverse. Like results, under the various conditions, occurring it the human as in the animal.

CHANGE OF RESIDENCE.

Rules for persons who go from a cold to a tropical climate.

Avoid arriving in a tropical climate during what is termed the rainy season of the year ; this, with some little variation, according to the place of destination, commences in August, and terminates at the end of October, or beginning of November.

Your place of abode should be somewhat elevated, dry, and open to the air and sun. Marshy grounds, and stagnant waters, when acted upon by a powerful sun, always send forth noxious exhalations and vapors, which give rise to intermittent and remittent fevers, fluxes, etc. When obliged to inhabit a house which is situated low, it will be prudent to occupy one of its highest apartments.

Expose your self at first, as little as possible, to the intense heat of the mid-day sun, and cautiously avoid the dews and damp air of the night. Wear cotton (flannel is preferable) next to the skin, not linen. Go early to bed, rise sometimes, making use very soon afterward of a cold bath, one of the best means of counteracting the injurious influence of a warm climate, and affording the most grateful sensations.

After cold bathing, take gentle exercise ; the morning being preferable for this to any other part of the day. Avoid any exposure of the body afterward to a current of air, or if overtaken by rain, so as to have your clothes wetted, change them as quickly as possible. Pay strict attention to cleanliness, not only by changing the linen once or twice every day, but also by minor ablutions of different parts of the body with cold water.

Persons just arrived in a tropical climate should partake only moderately of the delicacies of the table, and make a

very temperate use of vinous or spirituous liquors. Before dinner, a solution of preserved tamarinds in water, simple lemonade, or the liquor known by the name of imperial, an appropriate drink.

Such persons should also refrain from all amusement and exercises of a heating nature. They should moderate all sensual gratifications, and cautiously guard against a costive state of the bowels, by regularly repairing to the privy once or twice a day at a stated hour, and then soliciting natural evacuations. If at any time these efforts should not be attended with due effect, one or two motions ought to be procured by the aid of an injection, or some cooling laxative.

Soldiers and sailors are very apt to suffer, in a tropical climate from the effects of intemperance, conjoined with an exposure to intense heat during the day, and moist air at night; and it therefore greatly behooves those who are placed in command over them, to be as attentive as possible in presenting such occurrences. The health of seamen, in particular, will much depend upon their avoiding undue exposure to the sun, rain, night air, intemperance, unwholesome duties on shore, and, in fine, to all such occupations as subject them to excessive heat or noxious exhalations, as these never fail to be highly dangerous to those not assimilated to the climate.

When pitching tents for soldiers or sailors on shore duties, the driest and highest spots should be chosen, and under cover of these, hammocks should be suspended. The men ought not to be suffered to sleep on the ground.

Persons who come from a cold to a warm country are more liable to many diseases, and particularly to fever, than the natives, and those who have been acclimated by time. The same exposure will produce fever, or other disease, in a stranger, while the native and old inhabitant will not be at all affected by it; or even supposing that both are attacked, the symptoms will be tenfold more urgent and severe in the former than the latter.

Observe a strict temperance in diet, living chiefly on veg-

etables and ripe fruits for the first two or three months, and avoiding, as much as possible, any exposure to the intense rays of the sun during the day, and the cool or damp air of the night, until the constitution has become assimilated to the climate. In closing this we give a word for those who come from a warm climate.

The Principal precaution to be observed by those who leave a warm climate, and either visit or become settled inhabitants of a cold one, is to arrive in the latter before the approach of winter, and to make such a suitable change in every part of their dress as shall effectually guard their bodies against the difference and vicissitudes of the atmosphere which they must encounter. On this account waistcoats and drawers of flannel should be worn by persons of both sexes next to the body on the approach of cold weather, and the outer garments should consist of articles of a close and warm texture.

ELECTRICITY.

We think it advisable to give the reader some general idea of the place which electricity should hold in the department of *materia Medica*. We will begin by asserting that no other agent is so generally useful, nor admits of so many and such varied applications. For some uses an electric battery stands alone and supreme and will occasionally help a patient on his way to recovery, when everything else has failed to render him the slightest service. Electricity has the power of evoking friction in every form of living tissue, and this power entitles it to a high place among those remedies called stimulants. It has chiefly been employed in medicine as a stimulant to muscular tissue. It is likewise a stimulant to nervous tissue. Like many other stimulants electricity has marked anodyne or soothing qualities, and its reputation as a remedy is based largely on this quality. To

those who ask what are the uses of electricity in medicine, we may reply that, according to its method of employment, it may be a stimulant, anodyne, sedative, caustic, styptic, or cautery. Dr. Poore says: "Electricity has been used in medicine in its three most usual forms. First, in the form which is generated in the so-called batteries, and which has been called the battery current, or, in honor of its discoverer Galvanism, or in honor of its chief investigator, Voltaic electricity, or by reason of the usual method of its employment, the continuous current. Secondly, it has been employed, and largely employed, in the form of the induced current; the form which has been named after our countryman, Faradism, and which from its usual method of employment is not uncommonly spoken of as the interrupted current. Thirdly, it has been employed in the form of frictional electricity, such as is generated by the friction of glass discs or cylinders, and which has also received the name of static electricity, or, in honor of its chief original investigator, Franklinism.

These three forms of electricity generated from batteries or by induction, or by friction, and which we shall speak of as Galvanism, Faradism, and Franklinism, are to be kept distinct in the mind, and, being employed as they are for widely different purposes, must no more be confounded together than the three narcotics, opium, chloral, and Indian hemp."

Having given this brief and general idea of electricity, will mention some of the diseases in which it has been used with success. There are certain diseases of which "writer's cramp," is a familiar example, characterized by an intense feeling of fatigue on an attempt being made to perform certain muscular acts, when the refreshing effects of the current has been most useful; the feeling of fatigue being at once removed by the application of the continuous galvanic current along nerves or muscles of the arm. We can influence a muscle in two ways—(1.) By acting upon the muscle itself, which is called direct faradisation or (2) by acting upon the

nerve which supplies the muscles, which is called indirect faradisation."

Electricity has also been successfully used in cases of paralysis, neuralgia, rheumatism, but in all cases it should be made under the advice of a competent physician. In connection with the sweedish movement cure or Massage, it has been found highly beneficial.

MASSAGE.

The following chapter is part of a very able one by Dr. Douglass Graham, on a subject which is rapidly growing in importance to thinking minds.

"Massage," from the Greek *masso* (I kneed or handle), is a term now generally accepted to signify a group of procedures which are usually done with the hands, such as friction, kneeding, manipulating, rolling, and percussion of the external tissues of the body, either with some curative, palliative, or hygienic object in view. Its application should in many instances be combined with passive, resistive, or assistive movements, and these are often spoken of as the so-called Swedish movement cure. There is, however, an increasing tendency on the part of scientific men to have the word "massage" embrace all these varied forms of manual therapeutics, for the reason that the word "cure," attached to any form of treatment whatsoever, can not always be applicable, inasmuch as there are many maladies that preclude the possibility of recovery and yet admit of amelioration. Hence the word "cure" may lead people to expect too much; and, on the other hand, the use of the word "rubbing" in place of "massage" tends to undervalue the application and benefit of the latter, for it is but natural to suppose that all kinds of rubbing are alike, differing only in the amount of force used.

According to the requirements of individual cases, mas-

sage may be of primary importance or of secondary importance, or of no use at all, or even injurious. Concerning the extent of its usefulness, it may with safety be said that, at tolerably definite stages in one or more classes of affections in every special and general department of medicine, evidence can be found that it has proved either directly or indirectly beneficial, or led to recovery, sometimes when other means had been but slowly operative, or apparently had failed altogether. In view of these facts, it need hardly be said that those who would properly understand and apply massage should be familiar with its past and present literature; they should also be familiar not only with the natural history of the maladies in which massage may be applied when left to themselves, but also with the course of these affections when treated in the usual approved methods, so that improvements or relapses may be referred to their proper causes. Moreover, they should know something about the methods of others who have any claim to respectability in their manner of applying massage, so as to compare them with his own. And yet all these qualifications may fail if the operator has not in addition abundance of time, patience, strength, and skill, acquired by long and intelligent experience. Measured by these requirements, I fear that good *masseurs* (manipulators) are scarce.

Dr. E. C. Seguin, in the *Archives of Medicine* for April, 1881, says, that even in New York there are few manipulators who can be trusted to do massage well. Massage may be studied as a science, but it has, like everything else in medicine and surgery, to be practiced as an art. Those who have a natural tact, talent and liking for massage, united with soft, elastic, and strong hands, and physical endurance to use them, may be as useful artists in this department of the healing art as in others. It has been well said that those who do massage should be tender and gentle, yet strong and enduring. These are qualities that are rarely found combined in manipulators. It is a very common mistake to suppose that those who are of a remarkable healthy, ruddy ap-

pearance, plethoric and fat, are the best fitted to do massage. Such people require a great deal of exercise in the open air for the proper oxygenation of their blood, and confining, indoor work, like massage, they soon find to be tedious and irksome. Besides the stooping attitude and varying positions so often necessary while doing his sort of work soon put them out of breath; and thus, while suffering from their ignorance and awkwardness, they fancy they are imparting "magnetism" to their patients at their own expense. Better that the manipulators should be rather thin, though if of too spare a habit, their hands will not be sufficiently strong and muscular, and their tissues generally will lack that firmness necessary for prolonged endurance.

One of the best German medical reviews thus indicates the esteem in which this treatment is held by many eminent physicians and Surgeons of Europe.

"It is but recently that massage has gained an extensive scientific consideration—since it has passed out of the hands of rough and ignorant empirics, into those of educated physicians; and upon the results of recent scientific investigations it has been cultivated into an improved therapeutical system, and has won for itself in its entirety the merit of having become a special branch of the art of medicine."

How is massage regarded, and what is its condition, in the United States? Except among very few—epicures in this matter, if one may so speak—there is as yet but little evidence of a desire to place massage, and those who do it, on their merits alone, irrespective of the policy of employing persons who are only rubbing machines, or of tolerating obnoxious individuals so long as the poor patients' minds are satisfied. This is too often the case, and then massage is said to have failed, and valuable time is lost, when, if it had been properly applied, it might have been successful; or, on the other hand, perhaps it should have been omitted and other remedies employed. The writer of this, in a recent paper on the "History of Massage," has said: "In almost every city of the United States, and indeed of the whole

civilized world, there may be found individuals claiming mysterious and magical powers of curing disease, setting bones, and relieving pain by the immediate application of their hands. Some of these boldly assert that their art is a gift from Heaven, due to some unknown power which they call magnetism, while others designate it by some peculiar word ending with *pathy* or *cure*, and it is astonishing how much credit they get for their supposed genius by many of the most learned people." Let a fisherman forsake his boat, or a blacksmith his anvil, or a carpenter his bench, or a shoemaker his shop, and proclaim that he has made the wonderful discovery that he is full of magnetism and can cure all diseases, and, be he ever so ignorant and uncouth, he is likely to have, in a remarkably short space of time, a large *clientele* of educated gentlemen and refined ladies. It is not meant to imply that the previous occupation of such people is at all to their discredit, but, were they capable of giving a rational explanation of their doings, the halo of mystery would be removed from around them, and their prestige and patronage would suffer a sudden decline.

Efforts have been made by physicians, who are thoroughly familiar with massage, to instruct intelligent nurses and others how to apply it, and at the training-schools for nurses the pupils receive some general instruction in the matter. In this way something has been accomplished to bring massage within the rules and regulations of common sense and rational therapeutics. But still there is great room for improvement even in this direction, for it is but too often the case that after one or two persons are specially trained to do massage they are requested to give instruction to some of the pupils at the schools for nurses, and for others, a few of whom, after having received some general desultory lessons, are in turn delegated or relegated to teach others, and so on, until by the time massage reaches the needy patients, there is often little left of it but the name. Hence it is not to be wondered at that many a shrewd superannuated auntie, and others who are out of a job, having learned the meaning of the

word massage, immediately have it printed on their cards, and keep on with their "rubbin" just as they always have done.

The vaguest generalities exist as to the manner of doing massage, even among the best authors on the subject, and after having studied and tried the methods of all, the writer proposes to briefly formulate, as much as space will permit of, what he has found to be of value, without having adopted any in particular. By so doing it is hoped that some will be able to judge whether those employed to do massage know anything about it or not, or whether it would not be as well to employ one of their own domestics for ordinary rubbing, the advantages of which are not to be despised. At any rate, I trust that not a few intelligent friends of chronic invalids, who are beyond the reach of the professional manipulator, will be enabled to apply massage so as to afford even greater relief and comfort than can be gained from many of those whom the ignorance of the community on this subject alone tolerates as experts.

The various procedures of massage have been described under four different heads, viz., friction, percussion, pressure, and movement. Malaxation, manipulation, deep-rubbing, kneading, or massage, properly so-called, is to be considered as a combination of the last two. Each and all of these may be gentle, moderate, or vigorous, according to the requirements of the case and the physical qualities of the operators.

Some general remarks here will save repetition :

1. All of the single or combined procedures should begin moderately, gradually increased in force and frequently to their fullest extent desirable, and should end gradually as begun.
2. The greatest extent of surface of the fingers and hands of the operator consistent with ease and efficacy of movement, should be adapted to the surface worked upon, in order that no time be lost by working with the ends of the fingers, or one portion of the hands, when all the rest might be occupied.
3. The patient should be placed in an easy and comfort-

able position as possible, in a well-ventilated room at a temperature of about 70 degrees Fahr.

4. What constitutes the dose of massage is to be determined by the force and frequency of the manipulations and the length of time during which they are employed. A good manipulator will do more in fifteen minutes than a poor one will in an hour, just as an old mechanic working deliberately will accomplish more than an inexperienced one working furiously. Friction has been described as rectilinear, vertical, transverse or horizontal, and circular. It has been stated, and very properly, that rectilinear friction should always be used in an upward direction, from the extremities to the trunk, so as to favor and not retard the venous and lymphatic currents. But a slight deviation from this method I have found to be more advantageous, for although in almost every case the upward strokes of the friction should be the stronger, yet the returning or downward movement may with benefit lightly graze the surface, imparting a soothing influence, without being so vigorous as to retard the circulation, and thus a saving of time and effort will be gained. The manner in which a carpenter uses his plane represents this forward-and-return movement very well. Transverse friction, or friction at right angles to the long axis of a limb, is a very ungraceful and awkward procedure. It has been introduced on theoretical considerations alone, and may with safety be laid aside, for the method already spoken of, together with circular friction, will do all and a great deal more than rubbing crosswise on a limb can do. A convenient extent of territory, to begin with, is from the ends of the fingers to the wrist, each stroke being of this length, the returning stroke being light, without raising the hand. The rapidity of these double strokes may be from one hundred to one hundred and fifty strokes a minute. The whole palmar surface of the fingers should be employed, and in such a manner that they will fit into the depressions formed by the approximation of the phalanges, and metacarpal bones. The heel of the hand should be used for especially vigorous fric-

tion of the palm, as well as for the sole of the foot. From the wrist to the elbow, and from the elbow to the shoulder, are separately convenient extents of surface, and here not only straight-line friction, extending from one joint to the other, may be used, but also circular friction. The form of the latter which I have found most serviceable is in that of an oval, both hands moving at the same time, the one ascending as the other descends, at the rate of one hundred and twenty-five to two hundred and fifty each minute, or two hundred and fifty to five hundred with both hands, each stroke reaching from joint to joint, the upward stroke being carefully kept within the limits of chafing the skin. These observations apply to the lower limbs also, but, as they are larger than the arms, the posterior and lateral aspects, from ankle to knee, will be a convenient territory, while the anterior and lateral aspects will be another for thorough and efficacious friction. The same systematic division of surface may be made above the knees as below, the number of strokes below will vary from 100 to 160 with each hand: above from 75 to 100 each. From the base of the skull to the spine of the scapula forms another region naturally well bounded for downward and outward semicircular friction, and from the spine of the scapula to the base of the sacrum, and crest of the ilium, forms another surface over which our one hand can sweep, while the other works toward it from the insertion to the origin of the glutei, at an average rate of 60 or 75 a minute with each hand for a person of medium size. It will be observed that on the back and thighs the strokes are not so rapid as on the other parts mentioned, for the reason that the skin is here thicker and coarser, in consequence of which the hand can not glide so easily, and the larger muscles beneath can well bear stronger pressure; besides, the strokes are somewhat longer, all of which require an increased expenditure of time. The chest should be done from the insertion to the origin of the pectoral muscles, and the abdomen from the right iliac fossa in the direction of the ascending, transverse, and descending colon. But here friction is seldom

necessary, for the procedure about to be considered accomplished is all that friction can do, and a great deal more in this region. The force used in doing friction is often much greater than is necessary, for it is only intended to act upon the skin and there are better ways of acting upon the tissues beneath it. If redness and irritation be looked upon as a measure of the beneficial effects of friction upon the skin, then a coarse towel, a hair mitten, or a brush would answer for this purpose a great deal better than the hand alone.

The most important, agreeable, and efficacious procedure of massage has been variously designated as manipulation, kneading, deep-rubbing, or massage properly so-called, in contradistinction to the more superficial method spoken of above. This is done by adapting as much as possible of the fingers and hands to the parts to be thus treated, and, without allowing them to slip on the skin, the tissues beneath are kneaded, rolled and manipulated in a circulatory manner, proceeding from the insertion toward the origin of the muscles, from the extremities to the trunk, in the direction of the returning blood and lymphatic currents. For this purpose the same divisions of surface as for friction will be found most convenient. Beginning then with the fingers, from the roots of the nails the thumb of the manipulator will be placed on one of the fingers of the patient, and parallel to the latter, while on the opposite side the index finger will be placed at right angles to this, and between the two the finger of the patient will be compressed and malaxated, in a rotatory manner, at the rate of 75 to 150 per minute. The dorsal and palmar surfaces will of course receive special attention, while the lateral aspects will come in for a secondary share. If the manipulator be sufficiently expert he can work with both hands on this small surface with the same rapidity as with one. Each finger and thumb will be taken in turn, and the manipulations extended over the metacarpal and carpal bones as far as the wrist-joint, and finally the palm of the hand by stretching the tissues vigorously away from the median line. Each part included in a single grasp may receive three or

four manipulations before proceeding onward to the adjacent region. The advance upon this should be such as to allow the finger and thumb to overlap one half of what has just been worked upon. Advance and review should thus be systematically carried on, and this is of general application to all the other tissues that can be *masséed*. The force used here and elsewhere must be carefully graduated so as to allow the patient's tissues to glide freely upon each other; for, if too great, the movement will be frustrated by the compression and perhaps bruising of the tissues; if too light, the operator's fingers will slip; and, if gliding with strong compression be used, the skin will be chafed. To avoid this last objection various greasy substances have been employed, so that ignorant would-be masseurs may rub without injuring the skin. When the skin is cold and dry, and the tissues in general are insufficiently nourished, as well as in certain fevers and other morbid conditions, there can be no doubt of the value of inunction; but no special skill is required in order to do this, and there is no need of calling it massage unless it be to please the fancy of the patient.

The feet may be dealt with in the same manner as the hands, using the ends of the fingers to work longitudinally between the metatarsal as well as between the metacarpal bones. Upon the arms and legs, and indeed upon all the rest of the body, both hands can be used to better advantage than where the surfaces are small. Each group of muscles should be systematically worked upon, and for this purpose one hand can usually be placed opposite to the other and in advance of it, so that two groups of muscles may be manipulated at the same time. When the circumference of the limb is not great, the fingers of one hand will partly reach on to the territory of the other, while grasping, circulatory, spiral manipulations are made, one hand contracting as the other relaxes, the greatest extension of the tissues being upward and laterally, and on the fore-arms and legs away from the median line. Subcutaneous bony surfaces, as those of the tibia and ulna, incidentally get sufficient attention while

manipulating their adjacent muscles, for if both be included in a vigorous grasp, unnecessary discomfort results. Care should be taken not to place the fingers and thumb of one hand too near those of the other, for by so doing their movements would be cramped. The elasticity, or want of it, in the patient's tissues, should be the guide, the object being to obtain their normal stretch, and in this every person is a law to himself, the character of their tissues varying with the amount and quality of adipose, modes of life, exercise, etc. A frequent error on the part of manipulators is in attempting to stretch the tissues in opposite directions at the same time, especially at the flexures of the joints, where the skin is delicate and sensitive, and where the temptation to such procedures, is greatest because easiest, the effect being a sensation of tearing of the skin. The rate of these manœuvres varies from 75 to 150 with each hand per minute on the arms, 60 to 90 on the legs, and from 40 to 80 on the thighs, where more force is required on account of the larger size and density of the muscles, and the need of using sufficient force to extend beneath the strong, tense fascia-lata.

On the back the direction of these efforts will be from the base of the skull downward, stretching the tissues away from the spinal column while manipulating in graceful curves, at an average rate of sixty per minute with each hand. And here one hand can often be reinforced by placing the other upon it, and thus massage may be done with all the strength a manipulator can put forth. With the ends of the fingers the muscles on each side of the spinal column can be rolled and the supra-spinous ligament can be effectually massed by transverse to-and-fro movements. The ends of the fingers and part of their palmar surface, should also be placed on each side of the spinous processes, and the tissues situated between these and the transverse processes worked upon by up-and-down motions parallel to the spine, taking care to avoid the too frequent error of making pushing, jerky movements, in place of smooth, uniform motions in each direction.

On the chest and abdomen the same general direction will be observed as in using friction, but the manipulation will be more gentle than on the back and limbs, for the tissues will not tolerate being so vigorously squeezed and pinched. Here the massage will consist of moderate pressure and movement with the palms of the hands and rolling and grasping the skin and superficial fascia; and, after this, on the abdomen, steady, firm, deep kneading in the direction of the ascending transverse and descending colon, using for this purpose the greatest force with the heel of the hand on the side of the abdomen next the operator, and on the other side the strongest manipulations with the fingers, avoiding the frequent and disagreeable mistake of pressing at the same time on the anterior portions of the pelvis. Before leaving this part of the subject, the writer begs leave to say something more about the common errors into which manipulators fall, even some of those who pass for being skillful, many do not know how to do the kneading or malaxation with ease and comfort to themselves and to their patients, in place of working from their wrists, and concentrating their energy in the muscles of their hands and forearms, they vigorously fix the muscles of their upper arms and shoulders. thus not only moving their own frame with every manipulation, but also that of their patients, giving to the latter a motion and sensation as if they were at sea in stormy weather. By this display of awkward and unnecessary energy, not only do they soon tire themselves, and say that they have lost magnetism by imparting it to their patients, but by the too firm compression of the patient's tissues they are not allowed to glide over each other; and hence such a way of proceeding entirely fails of the object for which it is intended. Surely, cultivation is the economy of effort.

Friction and manipulation may be used alternately, varied with rapid pinching of the skin and deeper grasping of the subcutaneous cellular tissue and muscular masses, and when necessary, percussion, passive, assistive, and resistive movements, finishing one convenient surface or limb before pass-

ing to another, and occupying from half an hour to an hour with all or part of these procedures. Pinching is used mainly to excite the circulation and innervation of the skin, and for this purpose it is best done rapidly at the rate of one hundred to one hundred and twenty-five per minute with each hand. To act upon the subcutaneous cellular tissue, a handful of skin is grasped and rolled and stretched more slowly than by the preceding method. A deeper, momentary grasping of the muscles is often advantageous, and may be called a *mobile intermittent compression*, and this, indeed, is what the whole of massage, strictly speaking, consists of. Percussion, applicable only over muscular masses, may be done in various ways. In the relative order of their importance they are as follows :

1. With the ulnar borders of the hands and fingers.
2. The same as the first, with the fingers separated.
3. With the ends of the fingers, the tips being united on the same plane.
4. With the dorsum of the upper halves of the fingers loosely flexed.
5. With the palms of the hands.
6. With the ulnar borders of the hands tightly shut.
7. With the palms of the hands held in a concave manner, so as to compress the air while percussing.

More gentle or vigorous and rapid percussion than any of these methods afford can be done by securing India-rubber air-balls on whale-bone or steel handles. With these one gets the spring of the handles together with the rebound of the balls, and thus rapidity of motion with easily varying intensity is gained, the number of blows varying from two hundred and fifty to six hundred a minute with both.

Remedial movements have been so well described in books on the so-called "movement-cure" that little need be said of them here. It is well for those who use them to know the anatomy and physiology of the joints and their natural limits of motion. Except in the case of relaxed joints, passive motion should be pushed until there is a feeling of slight resist-

ance to both patient and manipulator; for by this will be known that in healthy joints the ligaments, capsules, and attachments of the muscles are being acted upon. Resistive movements are such as the patient can make while the operator resists. The opposing force should be carefully and instinctively kept within the limits of the patient's strength and this, with all these other manœuvres, should stop short of fatigue.

To alternately resist flexion and extension is the *pons asinorum* (a help to dull pupils) of manipulators, and, in a considerable experience of teaching massage, I have found but few who could learn to do it at all.

The relative importance of the foregoing procedures has been partly indicated while describing them. According to the needs of individual cases, one or more of these will predominate or be omitted, and it is well that the advice of a physician be sought on this subject, for there would be no use in giving a patient friction, the capillary circulation of whose skin was already sufficiently good; and it would be a waste of time and strength to administer passive and resistive movements to patients who were already fatigued from overwork. To rouse the dormant action of a cold skin and flabby muscles, percussion will be of the first importance and will alternate with friction and manipulation. Percussion is in massage what faradization is in electricity, and will often answer the same purpose; manipulation or deep-kneading is to massage, what the constant current is to electricity, and the ultimate effects of each are very much alike. Numerous instances are given in which massage has succeeded after electricity and other means failed. The reverse of this may be true, but as yet I have not seen any proof of it.

Let us now speak of the general effects of massage, and first, it may be well to premise that it requires, on the part of the patient a certain amount of latent energy, if one may so call it, in order to undergo even a minimum instance of massage; for a patient may be so weak as to preclude the possibility of its being applied without harm resulting. In

properly selected cases, instances of which are frequently seen in individuals suffering from overwork, or want of work, worry, depression of spirits, and loss of sleep, together with feeble and tardy digestion—those who can not get or take rest, no matter how favorable the opportunity—the effects of massage are generally as follows :

While it is being done, and generally for several hours afterwards, the patients are in a blissful state of repose ; they feel as if they were enjoying a long rest, or had just returned from a refreshing vacation, and not a few say that it makes optimists of them for the time being. It produces warmth, comfort, and sleep ; relieves or cures constipation, muscular pains, and stiffness. To those to whom exercise would be injurious, massage affords the advantages of exercise without exertion, while the subjects of it are resting, their overtaxed will and used up nervous energy not being required to express themselves in voluntary motion.

The different ranks of the Sandwich Islanders are of different stature ; and we are told that the chiefs, though sunk in sloth and immorality, are not dimiutive and decrepit, like many of their countrymen, for the reason that they fare sumptuously, take little or no exercise, and are *lomi-lomied* after every meal, in order to aid their digestion and promote their circulation without inducing fatigue or exhaustion. *Lomi-lomi* is thus interestingly described by Nordhoff, in his book on "Northern California, Oregon, and the Sandwich Islands": "Wherever you stop, for lunch or for the night, if there are native people near, you will be greatly refreshed by the application of *lomi-lomi*. Almost everywhere you will find some one skilled in this peculiar, and, to tired muscles, delightful and refreshing treatment. To be *lomi-lomied*, you lie down upon a mat, or undress for the night, if you prefer. The less clothing you have on the more perfectly the operation can be performed. To you, thereupon, comes a stout native with soft, fleshy hands, but a strong grip, and beginning with your head, and working down slowly over the whole body, seizes and squeezes with quite a peculiar art every tired mus-

cle, working and kneading with indefatigable patience, until, in half an hour, whereas you were weary and worn out, you find yourself fresh, all soreness and weariness absolutely and entirely gone, and mind and body soothed to a healthful and refreshing sleep. The *lomi-lomi* is used not only by the natives, but among almost all the foreign residents; and not merely to procure relief from weariness, consequent upon over-exertion, but to cure headaches, to relieve the aching of neuralgic or rheumatic pains, and, by the luxurious, as one of the pleasures of life. I have known it to relieve violent headache in a very short time.

It is a device for relieving pain and weariness which seems to have no injurious reaction, and no drawback but one—it is said to fatten the subjects of it."

Dr. Weir Mitchell has successfully proved that many chronic invalids can be cured by rest and excessive feeding, made possible by means of massage and electricity. Under this combination of treatment, skillfully carried out, many become fat, strong, and well.

In using massage, as much depends on the qualities and qualifications of the person who does it as in any other occupation. It would be wrong to leave the impression that massage is always agreeable from the first. In proportion as the muscles, superficial fascia, and skin are naturally tough, tense, matted and hide-bound, will the massage be disagreeable until they become soft, supple, and elastic. An appreciation of the proper consistence of the tissues and their anatomical structure is of the utmost importance for the success of this treatment.

But we must hasten to consider how massage acts locally, By upward and oval friction, with deep manipulation, the veins and lymphatics are mechanically emptied—the blood and lymph are pushed along more quickly by the additional *vis a tergo* of the massage, and these fluids can not return by reason of the valvular folds on the internal coats of their vessels. Thus, not only is more space created for returning currents arising from beyond the region *masseed*,

but, at the same time, a vacuum is formed, which is visible in the superficial veins of persons who are not too fat; and this is thought by some to add a new force to the more distal circulation. In this way the collateral circulation in the deeper vessels is aided and relieved, as well as the more distal stream in the capillaries and arterioles. One would naturally suppose that the circulation in the larger arteries would, in this manner, be interrupted, and such is the case. But, herein comes an additional advantage to aid the circulation, for the temporary and momentary intermittent compression causes a dilation of the artery from an increased volume of blood above the part pressed upon, and this accumulation rushes onward with greater rapidity as soon as the pressure is removed, in consequence of the force of the heart's action and the resiliency of the arteries acting upon the accumulated volume of blood.

But the same pressure also acts upon the tissues external to the vessels, causing a more rapid resorption of natural or pathological products through the walls of the venous capillaries and lymphatics. When muscular nerves are stimulated, the vaso-dilators are influenced, and this takes place by massage, whence follows enlargement of the lumen of the vessels, so that an increased flow passes through them with greater ease and diminished pressure. When stimuli are applied to the skin, reflex vaso-motor action shows that the vaso-dilators are acted upon, hence the redness and congestion of the skin when massage is specially directed to it. It can be readily seen now that massage rouses dormant capillaries, increases the area and speed of the circulation, furthers absorption and stimulates the vaso-motor nerves, all of which are aids and not hindrances to the heart's action, as well as to nutrition in general. Seeing that more blood passes in a given time, there will be an increase in the total interchange between the blood and the tissues, and then the total amount of work done by the circulation will be greater and the share borne by each quantity of blood less. It will not be surprising, then, to learn that in practice, massage sometimes

proves a valuable ally in the treatment of functional and organic diseases of the heart, for "the peripheral friction of the blood against the walls of the capillaries and small arteries not only opposes the flow of blood through them, but, working backward along the whole arterial system, has to be overcome by the heart at each systole of the left ventricle." This obstacle is in great part lessened by massage. No better praise can be bestowed upon any therapeutical agent, than the old fashioned, haughty, supercilious way of dismissing the subject of massage as unworthy of notice by saying that it was merely a substitute for exercise.

HOW TO BE PLUMP, OR TALKS ON PHYSIOLOGICAL FEEDING.

The following chapter is a synopsis of a book of the same name, by T. C. Duncan, M. D.

“Why can not the picture of health be painted on all faces?

Why is plumpness associated with health, and leanness with disease?

Why are Americans proverbially lean?

These are vital questions, that touch the philanthropic, interest the statesman, and arouse scientific investigation.

The rules for healthy feeding are simple when once understood.

During the last ten years, the question of physiological feeding for infants, children, youths and adults when sick and well, has been one to which much thought has been given. The quieting effects of a few pounds of fat gave a clue to much of the restless activity of Americans. The fact that thin children and youths are precocious, and as adults are imperfectly developed, was an observation that threw much light on the physical degeneracy of our people, and at the same time lifted a dark cloud of suspicion from the holy atmosphere of American motherhood. Immature trees bear little or no fruit. It was a happy relief when I found that fat would delay and perfect development as well in America as in Great Britain, and that the absence of a moist equable climate might be in a great measure compensated for by a liquid diet.

The best physiological diet is the cheapest and most convenient.

Prof. Blot says, "Soups are to old people what milk is for children." If he had said that soups are to all people what milk is for babies he would have come nearer the truth.

In the following pages an attempt has been made to present the principles that underlie the question of proper feeding. To give the full physiological explanations of why one article is fattening and another is not, would swell this chapter beyond its scope.

If the perusal of these pages will the better enable a physician to direct the food proper for his many and varied patients; will enable a mother to keep her children fat, fair and rosy; to help one youth to mature slowly but perfectly; to assist any young lady to keep plump and well; to prevent any rushing business man from breaking down for the want of a good bank account of fat laid up for emergencies, or in any way to conduce to the happiness of mankind and the spread of that broad charity that "does as we would be done by," this chapter will have fulfilled an important mission.

"But are there no rules for living? We hear a great deal about the Laws of Health. What are they?"

"A law, you know, is a rule, precept, maxim, order, or decree with a penalty. The Laws of Health are ten, according to Dr. Black and relate to air, food and drink, exercise, clothing, climate, occupation, cleanliness, mental quiet, sleep, and marriage relation and social intercourse. Of those, it will be seen, that four are vital. Next to the necessity for pure air is that of adequate and wholesome food and drink.' Air is a food, and exercise, sleep, clothing, and climate—and in fact all the rest bear directly on the food question. While here is an inexorable law that we must eat or die, what we shall eat, and when we shall eat, is left to the caprice of appetite or custom."

There is a scientific basis on which this whole question rests. Too much fat or corpulence is as much an evidence of a disease tendency, as its opposite—leanness. Therefore

to be healthy we want to know what to eat, so that we may observe the golden mean—florid plumpness, which is the “picture of health” the world over.

To begin with a few hints on feeding :

Drink a pint of water, at least, a day, taking half a glass on rising, the same about 10 A. M., 4 P. M., and 9 P. M.; drink with your meals fresh milk but no water; eat hearty and I am sure you will take on flesh.

Water, starchy food, fats, vegetables, sweets and quiet, put on the fat.

Leanness, a disease.

Is leanness a disease, or disease tendency? That is a very practical question as we shall see: The term leanness implies a simple absence of fat, and is not to be confounded with thinness and emaciation—terms expressing in different degrees the absence, not only of fat, but also of the gelatinous and albuminous tissues.

Leanness, when it can not be referred to a satisfactory cause, must be accounted a disease. When extreme, it is usually accompanied by more or less thinness or emaciation—states of the system which if not explicable on obvious principles, must almost always be considered as morbid.

It is rare to see a person steadily gaining fat, after any pathological reduction of weight, without a corresponding gain in amount and quality of blood. Almost any grave change for the worse in health, is at once betrayed in most people by a loss of fat, and this is readily seen in the altered forms of the face, which because it is always visible, and in outline the most irregular part of the body, shows first and most plainly the loss and gain of tissue.

The loss of fat, especially its rapid or steady loss nearly always goes along with conditions which impoverish the blood, and, on the other hand, the gain of fat up to certain point seems to go hand in hand with a rise in all other essentials of health, and notably with an improvement in the color and amount of the red corpuscles.

Leanness depends either on predisposing or on exciting causes. Some individuals have a natural tendency to leanness. Such tendency often runs in families, even through several generations. The first thing which strikes an American in England, is the number of inordinately fat people, and especially fat women. This excess of flesh we usually associate in idea with slothfulness, but English women exercise more than ours, and live in a land where few days forbid it, so that such a tendency to obesity is due chiefly to climatic causes. To this also we may no doubt ascribe the habits of the English as to food. They are larger feeders than we.

The exciting causes of leanness may be considered under the heads of climate or locality; and diet and exercise. The inhabitants of mountainous and barren sandy regions are naturally disposed to be lean. Leanness more than from any other cause, results from deficient or innutritious diet; from the free use of acid liquors, as cider, etc.; from excessive bodily and mental activity; and from a variety of affections capable of deranging or suspending the primary assimilating processes and thus cutting off the supplies—the *modus operandi* of all which, and particularly of deficient and innutritious food and excessive bodily exercise, is sufficiently obvious. Another cause of leanness may consist in some persons, in a natural imperfection of the faculty of assimilating fats. This incapacity of assimilating oleaginous matters shows itself in a variety of ways. Thus there are some individuals whose stomachs will not tolerate the least proportion of fatty matters; there others who never fail to suffer from its use, by what is called bilious derangement. Such individuals are usually lean. On the other hand there are individuals whose stomachs will bear any amount of fat with impunity, and who yet remain lean. These three conditions of the system undoubtedly depend on very different causes. The two first conditions, in particular, most usually occur in individuals of an excitable and nervous character, of great mental activity; and susceptibility; and who moreover, have suffered much mental affliction, real or imaginary.

In spare individuals who take fat with impunity, it is either not assimilated at all, and passes through the bowels unchanged; or if the fat be taken up, it is disposed of as fast as it is deposited, so as to prevent its accumulation. This latter more particularly occurs in healthy individuals who take much exercise or are mentally worried; and who under no system of diet whatever, would become fat.

There is another class of persons, who, believing that fat food is very innutritious and hurtful, carefully exclude it from their dietary.

Another cause of leanness is the lack of water. It is a strange fact that as a rule, lean persons drink little or no water. They say they do not crave for it, therefore they do not drink it.

There is a restless anxiety about lean people that is distressing. They look hungry, sad and irritable. As children they whine and cry and put all creation out of joint.

"The very thin must certainly, so to speak, live from hand to mouth, and have little for emergencies.

It is desirable for all persons whether suffering in health or otherwise, to know as near as possible what the normal weight should be. We are indebted to the late Dr. John Hutchinson for weighing above two thousand six hundred men at various ages. There is indeed an obvious relation between the height and the weight he so pertinaciously weighed and measured, starting with the lowest men in the tables it will be found that the increase weight was as nearly as possible five pounds for every inch in height beyond sixty-one inches.

The following figures show the relative height and weight of individuals measuring five feet and upwards :

Feet.	STATURE.		Weight.
	Inches.		
5	1	Should be	120 lbs.
5	2	"	126 "
5	3	"	133 "

5	4	"	136	"
5	5	"	142	"
5	6	"	145	"
5	7	"	148	"
5	8	"	155	"
5	9	"	162	"
5	10	"	169	"
5	11	"	174	"
6	0	"	178	"

That there is for every adult man of a certain height a tolerable definite weight which is not difficult for any individual to find out, and that all considerable permanent additions must consist of fat, and are really unnecessary, especially in summer. As to the exact amount of fat which may exist without proving injurious to health, there appears to be the greatest variation, some possessing an enormous development of this tissue and enjoying perfect health.

"It is impossible," as Dr. Hutchinson remarks, "to say where the weight by excess commences; it is therefore only in the extreme of weight that we can positively say that there is excess or deficiency. But it is with these extremes that we are now concerned, for it is in extremes only that disease consists and with the slight variations from what as physiologists we lay down as the normal condition our interference is not required.

The importance of water.

One of the first questions I ask a lean person is "How much water do you drink?" As a rule they drink very little. Few persons appreciate the fact, that according to the best calculations, water constitutes in the normal human subject about seventy per cent of the entire weight of the body. The water which thus forms a part of the animal frame is derived mainly from without. It is taken in the different kinds of drink and forms an abundant ingredient in the various articles of food. Water is universally present

in all the tissues and fluids of the body. It is abundant in the blood and secretions where its presence is indispensable in order to give them the fluidity which is necessary to the performance of their functions. Water is therefore an essential ingredient of the fluids, for it holds these solid materials in solution, and enables them to pass and repass through the animal frame. Water is also an ingredient of the solids. Muscles, tendons, cartilages, bones, teeth, glands, skin, etc. If water of tendons, skins etc., be evaporated they become yellowish in color, shriveled and unfit for performing their functions. This accounts for the sallow appearance of lean people.

Water takes part in the vital functions principally by its physical properties. It is the universal solvent for all the ingredients of the animal fluids holding them in solution either by its direct liquifying power, or by the aid of other substances which are themselves soluble. It thus enables the nutritious elements of the food to find their way into the circulating fluid, and to penetrate the substance of the solid organs. It permeates the organized membranes of the body and brings into contact with each other the organic and inorganic materials of various parts, and enables them to assume new forms by their mutual reactions. In this way it is subservient to all the phenomena of absorption, transudation, exhalation, and even chemical union and decomposition, which make up internal nutritive functions of the animal frame.

The main bulk of the water taken in, does not simply pass through the bowels, but, is taken up by the mucous membrane, and enters the circulating fluid. As it appears in the secretions it brings with it various ingredients. When it is finally discharged it is mingled in the urine and fæces with salts and excrementitious matters, which it holds in solution, and in the cutaneous and pulmonary exhalations with animal vapors and odoriferous materials of various kinds. In the perspiration it also contains mineral sulphates and chlorides, which it leaves behind on evaporation. Water is also formed in small quantities in the body.

With these facts before us we can readily understand why a person, who does not take much water except in foods, is lean; why the bowels are constipated; the urine high colored; the skin dry and sallow; the feet cold, etc. Lacking the necessary fluidity, the functions are all performed with difficulty. Many cases of dyspepsia are due to lack of water. Many cases of constipation can be cured by a pint or two of water taken between meals. Many cases of irritation of the urinal tract can be relieved by rendering the urine more fluid and oily. Many cases of headache can be relieved by increasing the fluidity of the blood. Many a case of functional palpitation of the heart can be mitigated by increasing the volume of the circulating fluid, with an extra pound of water. Many a case of spinal irritation and nervous exhaustion are due to a lack of quantity and quality of the blood current, of which about 80 per cent. is water.

I forbid cold water to be taken at the meals for the simple reason that the stomach is then at its highest functional activity, and cold lowers its temperature, retards digestion, giving the food a chance to generate gasses and thus mechanically interfere with the normal contractions of this organ. Warm fluids, like milk and water, facilitates the solution of the food and hastens its assimilation. In some old dyspeptics where the food is slow of digestion, remaining hours in the stomach, I have found that a glass of hot water, drank an hour or so after the meal, will re-stimulate the stomach to complete its work, and also aid the absorbents to greater activity. It also carries the food farther down the alimentary tract, and thus relieves the stomach, by throwing more of the work of digestion upon the intestines.

We know that milk is largely digested below the stomach, for the reason that infantile digestion is chiefly intestinal, therefore, I have found milk an excellent article of food to aid the fattening process. It will be seen that milk is composed of nearly 90 per cent. of water therefore it is readily assimilated.

The great necessity for water, and especially by lean

people living in a comparatively dry atmosphere, as is found in many parts of America, is very apparent to the most casual observer. Children like plants need plenty of water. As 80 per cent. of their bodies is water they should have their full allowance of this vital fluid. Children flourish best in a moist climate, *e. g.*, Great Britain, Canada, Germany, etc.; while in dry France and America the rearing of infants is difficult.

The importance of fat.

Is not fat a burden rather than a luxury, a clog to the system rather than a benefit?

The great importance of sufficient fat, stored up in the tissues, is not properly appreciated. Fat is found in nearly all parts of the body; it aids digestion and assimilation, quickens the circulation, and hastens all activity. The instinctive desire shown by all nations for an oily diet, and the association of this substance with the idea of luxury in all times, shows the value of a certain amount of it to man's comfort. "The Hindoo Sepoy, when he devours his gallon of rice for a meal, will spend all he 'pice' he can get on the clarified butter of the country; and 'as good as ghee' is his expression of unqualified praise. It is an error in Dr. Liebig, to state that oily foods are an object of disgust to natives of hot climates; all races of men require them and seek after them. Throughout mankind there is an instinctive desire for this food."

A moderate amount of fat is a sign of good health, and physiologists generally allow that the adipose tissue (fat) ought to form about the twentieth part of the weight of a man, and the sixteenth of a woman.

Independently of the importance of fat as a non-conducting substance, and therefore very necessary in cold weather in impeding the too rapid escape of animal heat, it may also be regarded as a store of material to compensate for waste of tissue, under sickness or other circumstances entailing temporary abstinence from food.

That fat or some nearly allied principle admits of the highest degree of organization, of which matter is perhaps capable, is evident from the large proportion in which it enters into the nervous and cerebral tissues; one fourth at least of the solid matters composing the brain and nervous system, is said to consist of oleaginous principles. With fats are associated an unusually large proportion of phosphorus and other incidental mineral matters.

The tendency to flesh is seen in individuals and also in nations *e. g.*, the Dutch are as stout as our Americans are proverbially thin. Over feeding will induce fat and so will the habits of taking too much fluids. The obese are not always great eaters; but they invariably drink a great deal, even though it be only water.

The quantity and quality of fat varies according to the age and the parts in which it is deposited. It is firmer and higher colored in old persons than in the young ones. The color of fat in people is no doubt also influenced by the kind of fat taken. Those who consume fat with much stearine are lighter than those who consume fats made up largely of olein. The yellowish green color of the fat of Italians and Jews is doubtless due chiefly to the olive oil, which is so largely eaten by these people. It is also more condensed and solid in parts liable to compression than in the omentum or about the heart, stomach and intestines. In children the fat is distributed over the surface of the body; but as we grow older it diminishes on the surface, in proportion as it becomes deeper seated. This latter fact will account for the darker skin of adults.

The importance of fat are physical, mental and moral. A child well nourished, fat and fair, grows rapidly and develops easily and finely; while a child thin in flesh (fat) grows feebly and develops poorly and with a struggle. A feeble boy or girl is almost certain to develop early and prematurely, and premature fruit early and easily decays. The organs are poorly nourished, there is no fat in the abdomen, and the form bends and contracts as in old age, while the

fleshy body stands nobly erect and has a royal mien. In the lean, the functions are performed with difficulty; the digestion is feebly performed; friction is manifest everywhere and there is often explosions of the nervous system, i. e., spasm, neuralgia, or bursts of passion.

The lean are restless and irritable in mind, rarely contented, never quiet, they form the complaining element of society, and are unstable as a rule. The oil or fat may be given by the skin, i. e., applied topically if the digestive organs will not take it; in one case, child teething, marasmatic with whooping cough, had been running down for months in spite of the most skillful treatment and abundant tonics. When I took charge of the case, I thought it could not live two weeks unless speedily relieved. No diet that I could suggest would be taken. Medicines had little effect. Ordered it rubbed with sweet oil every night; in three days it began to eat, and in two weeks it ate the whole time. "Soup! soup!" was its cry all day, and if awake in the night would call for "soup." From a living skeleton, with a dry sallow skin, it became plump, fair and rosy—the picture of health.

Fatty matters are digested by the emulsifying action of the pancreatic fluid; and by being thus broken up into extremely minute globules they are freely admitted into the lacteal vessels; in fact the emulsified globules of fat are seen covering the villi of the intestines, penetrating the tissues, pervading the subjacent cellular bodies and thus entering the lacteals. From thence they enter into the lymphatic glands through which they pass to the chyle duct, as lymph or white-blood corpuscles. They do not directly pass through the lymphatic glands, but swell the first cells which crowd off the ones on the opposite side.

This fat serves important functions in the processes of digestion, assimilation and nutrition. According to Leymann, it is one of the most active agents in the metamorphosis of animal matter; and this is seen not merely in the solution of nitrogenous articles of food during digestion, but also in the conversion of nutrient plastic substances into cells

and masses of fibre—connective tissue, which is the upward transformation of white blood, lymph or fat corpuscles with their casein or fibrinous envelop.

Elasser long since observed that during the process of artificial digestion, the solution of nitrogenous food was considerably accelerated by means of fat; and Leymann has since determined, by actual experiment on dogs, that albuminous substances deprived of the fat, remain longer in the stomach, and require more time for their metamorphosis than the same substances impregnated with fat. This is one reason why cow's milk is more difficult of digestion. It will be seen that it is deficient in fat. It is probable indeed that the digestive power of the pancreatic fluid is due, in great measure, to the presence of fat; and that the subsequent chymification of food and its absorption is greatly assisted thereby.

There is also good reason for believing that it is largely concerned in the formation of bile, and that the biliary acids are congregated fatty compounds. This may account for the well-known action of fat, bacon, etc., in promoting the secretion of bile.

The digestive power of fat as we have seen is certainly considerable, and it is no less active in the subsequent conversion of nitrogenous matters into cells and tissues, and retrograde decay. Colorless blood corpuscles, as we have seen, receive the first impulse of their formation from the metamorphosis of fat; and thus it is an important aid in the genesis of blood.

It would appear from the latest investigations of physiologists that fat plays an equally important part in every kind of cell development. Acherson showed, as far back as 1840, that albumen always coagulates from its solution around a fat globule, and this is seen in the digestion of the little fatty particles of milk which have an envelop like a cell wall of consolidated casine.

Hunefield, Nasse and others, have further shown that the nucleoli of cells invariably consist of fat, and that recently formed plasma, always contains more fat than the mature

cell. This is one reason why infants need so much fat.

The importance of starchy food and sweets.

It will be seen that starch is the largest element taken into the body—twelve ounces per day. We take starch in the shape of bread, potatoes and other vegetables. Starch is placed among the “health givers,” but it has other and perhaps more important functions. In the mouth starch is converted into dextrine by the action of the alkaline saliva. This dextrine or gum is absorbed in this shape or is further transformed by the pancreatic juice and bile into grape sugar. In this form it enters the circulation and helps swell the cells. One of the actions of this agent is to prevent the rapid oxidation of the system, and another is to favor the absorption of oxygen in the lungs. “The small quantity of sugar naturally present in the blood aids in retaining the carbonate and phosphate of lime in solution, and according to Hoppe, assists that metamorphosis by which fat is generated from albuminous compounds.”

If the amount of sugar taken is in excess, especially by children, lactic acid is developed in such large quantities, that the lime of the bones is dissolved out, causing “bow-legs,” “haunch-backs,” rickets, hydrocephalus, and other serious disorders.

Sweets are chiefly taken in adult life in the form of cane sugar. Children take large quantities of milk sugar with their milk. The cane sugar must be changed into grape sugar before it can be taken up by the system. Part of this sugar is converted into lactic acid, and a portion of this saccharine matter (hydro-carbon) passes into the system by being absorbed by the portal circulation, and on to the liver where it is detained and metamorphosed. The next step of digestion is the transformation of lactic acid into carbonic acid and water. These various changes aids the general transformation of the system, as well as generate much heat. It is well known that sweets aid in the fattening process.

“In sugar growing countries the negroes and cattle em-

ployed on the plantations grow remarkably stout, while the cane is being gathered and the sugar extracted. During this harvest the saccharine juices are freely consumed ; but when the season is over the superabundant adipose tissue is gradually lost. Saccharine matters are especially fattening.

In the Orient the women of the harem are fattened against a certain day, by feeding them freely with honey and black bread.

Milk containing much sugar is easier of digestion than milk poor in sweets. The sugar of the milk swells the globules. In the same way it doubtless aids digestion and assimilation.

Whatever may be the proper explanation, the presence of sweets very much aids the fattening process.

Starchy food taken in excess taxes the liver till it becomes enormous in size, from the deposit of fat therein, if persevered in respiration is impeded and there is great danger of suffocation.

How to become plump.

You want to know how to increase in fat, and then how to keep plump.

Dr. Duncan says, the way he became plump, that accidentally, or perhaps through necessity, he began to eat oysters as a steady diet. Often he ate them when he really did not want them. He noticed that, after taking oyster stews with supper, he began to bloat about the waist. The bloating was rather distressing at first, as it increased from day to day, he became concerned. Having often had the same uncomfortable distended feeling after a hearty meal of substantial food, found it was followed by severe indigestion—without serious result, however, after eating oysters, and soon learned that this bloating was the first step in the fattening process. We must “bloat up,” then “fat up.” This bloating is at first very uncomfortable, and some ladies have suddenly abandoned the plans of living, laid down for fattening, on the appearance of this marked *embonpoint*. Mothers

have become alarmed at the enlarged abdomens of their children, that seemed a deformity compared with their "spindle shanks;" but after a little perseverance in the fattening diet, soon changes all this for plump bodies, rounded limbs and full faces.

In addition to the hints already given, a few general directions may be allowed for those desirous of increasing their bank account of working force—fat.

Special cases will need special directions, which every physician who is skilled in physiology and in applying the general rules here laid down, ought to be competent to give. Serious disease may account for the leanness, and a cure must precede the fattening process, but I am satisfied that leanness is responsible for many of the ailments that "flesh is heir to." Many cases of chronic disease are due simply to chronic starvation. In these cases proper living is a vital question.

Activity of mind or body if excessive prevents fattening. Sufficient rest must be secured. Persons who want to get and keep plump, must give the system time to recruit. They should retire about 10 P. M. and enjoy sleep until 6 or 7 A. M. A brain worker needs more sleep than a muscle worker—a mechanic for example. To ensure sound sleep, the mind should be diverted, an hour or so before retiring, from business into some less absorbing line, as pleasant conversation or quiet, devout meditation. Those who cannot divert the mind will be apt to break down sooner or later, and will be very hard to fatten.

When the appetite is good and the person eats well and lives moderately, I have found that a pint of water taken in four doses (morning, 10 A. M., 4 and 9 P. M.) will often be all that is needed to insure a prompt and constant increase of fat.

A drink of water should be taken immediately on rising. It should be fresh water and not what has stood in the lead pipes or in a newly painted pail. It should not be too cold. If water taken at this time chills the stomach, it should be

swallowed slowly, after being held in the mouth, for some time.

If there is any constipation, a pinch of table salt may be added to this half glass of water. The breakfast should be plain and substantial, and should be hearty the year round, and especially in summer.

"Egg on toast, with a cup of coffee" is not enough. Potatoes, meat, (fried mush or oat meal porridge, is a good substitute) bread and butter with some form of drink should be taken. The drink may be "milk and water" sweetened. There is no serious objections to tea or coffee if they are well "milked." Coffee is better than tea at this hour, as being less stimulating. Milk, warm or warmed with water, is a substantial stimulant, it both increases, and quickens, the circulation of blood.

If the breakfast should seem to lay heavy on the stomach after an hour, a small drink of water may be taken. This aids the solution of food, facilitates digestion and carries the food on down into the intestines,

Two or three hours after this meal, a drink of water (half a glass) should be taken. Too much water should be avoided, as it sends the blood too rapidly into the capillaries and some of the serum transudes in the form of perspiration. Profuse sweating at any time is an evidence of weakness and should not be encouraged. If the person gets faint before dinner, because the work is hard or the weather cold and damp, a cracker may be eaten at 10 o'clock with the glass of water. This is easy of digestion, being changed below the stomach into dextrine, and in that shape passes rapidly into the circulation. In moist Great Britain a lunch at 10 A. M. is a common custom.

The hearty meal of the day should come four hours—not later than five hours—after breakfast. The first thing taken should be a light soup, not highly seasoned.

Most of the soups are too thick and too highly seasoned. Soup reinforces the digestive juices, and enables them better to dissolve, digest and assimilate the more substantial and

nourishing articles that should compose this meal. Vegetables should enter largely into this meal. Wadd has told us that "among the Asiatics there are Brahmins who pride themselves on their extreme corpulency.

Their diet consists of farinaceous vegetables, milk, sugar, sweetmeats and ghee. They look upon corpulency as a proof of opulence; and many arrive at a great degree of obesity without tasting anything that ever lived." Dr. Fothergill stated that a strict vegetable diet produces exuberant fat more certainly than other means. Another value of vegetable food, it is also less stimulating. In fact, recent observations have demonstrated that it is the best form of diet to control the desire for stimulants.

Condiments, spices, acids and stimulants, unless very mild, should be avoided. Cold water should also be eschewed, as it chills the stomach and thoroughly weakens it. The drink should be chocolate or milk. This meal should be eaten slowly with pleasant company. An half hour rest or siesta should then be indulged in, if possible. The whole force of the body should now be concentrated on digestion and assimilation.

If our business men would follow this plan, insisting on their employees doing likewise, fewer of them would "break down," or up, and more and better work would be the result.

Persons who are broken of their rest at night, as physicians, for example, can recruit the brain by indulging in a hearty meal, which is stupefying.

If this meal lays heavy on the stomach, as it often does with dyspeptics, I have found that a drink of plain hot water, (sweetened or salted to taste), aids nicely to complete digestion.

About 3 or 4 P. M. a drink of water should be taken. Perspiration at this time of day is often a relief, if not excessive.

The evening meal should be light. Bread and tea with a mild form of sauce is not amiss. The tea should be weak and well milked. Bread and milk, or oat meal mush and milk is

almost too substantial, unless the person is exhausted and hungry. The milk should be warmed with water. The general system, at this time of day, needs relief—a clearing out—and this is accomplished by the light stimulating food. A hearty meal at this hour clogs the circulation, and makes sleep heavy and unrefreshing, unless late hours are indulged in. If the person must be up four or five hours more, this meal should be more substantial than if one is to retire at nine or ten o'clock. Children and old people should retire early. Artificial light taxes the brain and nervous system, and the less of it the better for health and sound sleep.

Before retiring a half glass of water should be drunk. This quickens the circulation, aids the elimination of post-organic matter from the tissues, and ensures quiet and refreshing sleep. Little if any brain work should be done at this recruiting time. The brain needs diversion. This is the time for friendly society. If a habit of night work has been acquired it should be broken up as speedily as possible. The fact that consumptives, as a rule, are “owls” should be evidence enough that night work of any kind is too consuming. There is more truth than poetry in the maxim.

“Early to bed and early to rise, make a man healthy, wealthy and wise.”

NURSING AND NURSES.

There is no subject, perhaps, treated in this work, of greater moment to physician, patient, readers all, than the one to which we now call your attention.

What is nursing? It is putting us in the best possible condition for nature to restore or preserve health, to prevent or to cure disease or injury. The physician or surgeon prescribes the conditions, the nurse carries them out. Sickness or disease is the way by which nature seeks to rectify an infraction of her law, we, in most instances, have to help her; partly, perhaps mainly, must nature depend upon nursing for her success or failure to restore the system to a normal condition by sickness.

It matters not how skillful the physician, how excellent his remedies, they may be, and very frequently are, rendered *nil*, and valuable lives pay forfeit for the want of a good nurse. It will not be our purpose here to treat of nursing under specific heads, and at length, but as briefly as may be possible in a general way, touching on whatsoever may be necessary and available in our houses.

Where possible, a room should be chosen as the sick ward of the home; it should be one capable of being well ventilated, of being made light or dark; (if occasion require,) and, preferably, should be located on the second floor, and south side of the house, in this latitude, and easy of access.

Ventilation is the supplying fresh air to take the place of that poisoned by the breath or other human emanations, the very first law, therefore, of good nursing is to maintain the air in the sick room as pure on the inside, as that on the outside, and that, too, without chilling the patient.

The door is not the proper means of ventilation and should be avoided, where possible, that foul air may be prevented entering the sick room from other parts of the house. The bed should be so located that the patient may, if desirable, be able to see out of the window without subjecting him to a glare of light falling directly into the eyes, and also so placed that a current of air may pass through the room without directly touching the bed. A very simple and excellent method of ventilating is to lower the top sash so that it may not fall below the top stop (or a little below if necessary for the exit of foul air,) and raise the lower sash so as not to clear the sill, by this means the air passes between the meeting bars in a sufficient quantity in the majority of cases. Fever patients want wind; pyæmic patients the freest possible supply of air about their beds, while other sick want a well aired room without draughts.

Another method of ventilating by the window, is that of placing a strip of wood an inch and a half to six inches wide, made to lay neatly,—the ends resting in the sash runs—between the sash and sill. (See Fig. 1.) The arrows indicate the course of the fresh air. I have sometimes caused a great number of small holes to be bored in every direction through the strip (*a*. Fig. 1.) so that the air injected into the room would be ample in quantity and well distributed.

Stoves should be avoided as a means of warming a sick room except, perhaps, those having open fronts known as the Franklin or of like style, or a soap-stone wood stove may be used where there is no grate and the open stoves cannot be obtained; nothing, however, can compare with the open fire-place in the sick room, it is at once a promoter of good cheer, a ventilator and a means of destruction to noxious germs. It should be carefully observed that the patient's head be never higher, when lying at rest, than the throat of the chimney, which at all times should be kept open.

The bed should be placed, as observed, in a position to secure air without draught, also where light may be obtained without glare, quiet and cleanliness; this often necessitates

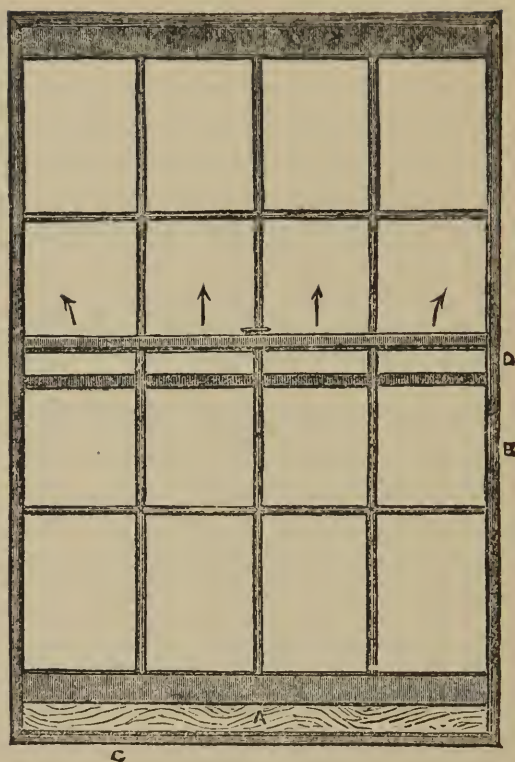


Fig. 1.

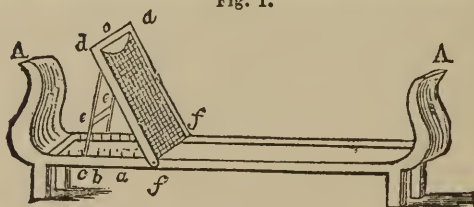


Fig. 2.

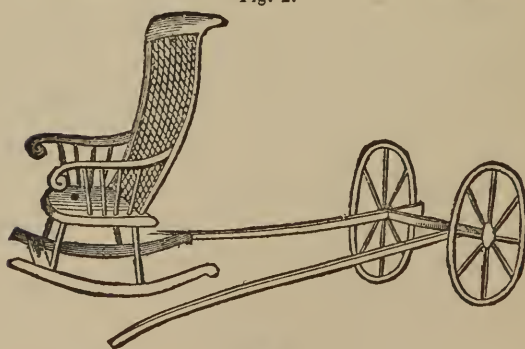


Fig. 3.

the rearrangement of the furniture in the room, whereby the nurse may, if skillful, accomplish much in one of the essential points in the art of nursing. Light is second only to air for growth, health and recovery from sickness. Sunlight is a promoter of health. In contagious diseases it disinfects and destroys the poisonous germs and at all times keeps the air pure and invigorating. It is well known that on the shady side of the street or a hospital more patients die than on the sunny side. In fact it is essential that air, to be fresh must be sun warmed and penetrated. With fresh air we must associate cleanliness, clean water, surroundings and a fresh atmosphere every day do not so much give life, as they are life itself to the patient and are the only true safe-guard against infection. Infection wards or rooms, whether necessary or not, are not a part of hygiene; and the doctrine of 'disease germs,' in the sense in which it may lead to considering 'infection' inevitable, must not be taught as a principle of sanitary nursing. That there is no such thing as 'inevitable' infection, is the first axiom of nursing."

If the room be set apart especially for a sick room, the walls should be oil painted, that they may, with soap and water, be readily cleansed, the floor be smooth and oiled, with good, drying, linseed oil, well rubbed in, this will prevent the necessity of too frequent scrubblings, which should be done only under the physician's orders. A light wash drugget may be used on the floor, carpets avoided, a dirty one used never, as it literally infects the room and is only excelled as a harbinger of infection by the porous paper so frequently found on bed room walls. As little furniture as can be got along with, should be used in the sick room; that used should be plain that it may be thoroughly cleansed with a sponge or cloth wrung out of hot water. All walls, ledges, or projections capable of catching dust should be frequently cleansed lest the air become thoroughly saturated with the animal exhalations that intermingles with dust and finds lodgement, and without constant attention and removal all but foils the best efforts of both nurse and physician. Dust

should be removed by wiping with a damp cloth, never by violent action with a duster or dry cloth, by this latter method there is only a redistribution of dust about the room, no atom of the dust really being removed from the room. No sick room can be thoroughly ventilated and the air freshened except by the most scrupulous cleanliness. Where it is necessary to use a broom, a wisp and dust pan, can be used, so as not to raise dust. The wisp may be dipped occasionally in water, with a few drops of ammonia in it, and well beaten out, or the carpet may be cleansed by wiping it with a cloth frequently wrung from clean water.

Chamber utensils should be of white glazed earthenware with well fitting lids; urinals should have wide necks; all should be kept cleansed and thoroughly well aired, never for a moment permitting them to stand holding excrement.

Where water closets are used, if the pans have been permitted to become offensive they should be scrubbed with strong nitric acid, the urinals should be scraped, where furred, and cleansed with boiling water, scrubbing with chlorinated soda and sand once or twice weekly.

Perhaps nothing is so soothing and restful to a sick and wearied person as a clean, well made bed; a good nurse knows how to make a bed and always makes it herself. The Sick Bed should be as a rule, just the opposite of the ordinary sick bed. The best bed and bedding for a sick room is a light airy bedstead, iron preferred, woven wire mattress, without valance or curtains, a high hair mattress, light blankets, (over, none under) and counterpanes. The bed clothing should be light that they may be easily washed, easily handled, not burdensome to the patient that a cover may be added or removed (without the patient feeling too greatly the change, and above all that they may be readily and thoroughly ventilated and purified. A most dangerous effluvia is that from the excreta of the sick; these are placed, at least for a time where they must throw their effluvia into the under side of the bed; where curtains or valences are used the underside of the bed is seldom or never aired. Since an adult in health

exhales by the lungs and skin about three pints of moisture, loaded with matter ready to putrefy every twenty-four hours; we can readily realize the bed of a sick person, ignorantly or carelessly nursed will soon become thoroughly saturated with the sick person, and the poor unfortunate who lies in it thoroughly saturated with the bed. A bed of this kind acts like a poultice and produces bed sores which are in by far the largest number of cases, certificates of bad nursing. "Cleanliness is next to Godliness." The writer once heard the question asked at a table, where sat a number of highly educated gentlemen, "What is dirt?" The answer accepted by all as the true one, was "Something out of place." In the sick room there should be a place for everything and every thing should be in its place. Great care should be paid to the style in which food is served to the patient. A snowy napkin spread on a waiter, with delicate china dishes, holding daintily prepared articles; in not over sufficient quantities, is a delight to every cultivated eye, especially so to that of the invalid, made keenly sensitive by illness. Each dish should be freshly prepared with the utmost skill and nicety. The tones of those in the sick room should be cheerful and tranquil; signs or whisperings should be avoided; they excite the patient unnecessarily and are prejudicial to recovery. All medicine should be kept out of sight of the patient, liquids should not be permitted to stand in the sick room, water thus standing soon becomes foul.

In changing the bed clothing, the utmost circumspection should be exercised.

If the bed on which the patient is placed be a wide one and it is necessary to change the clothes, make up one half of the bed with fresh clothes, roll the soiled ones lengthwise to the middle, lift the patient to the clean side, unroll the clean side, slip off the soiled side and it is finished without difficulty. A good plan is to put a board a few inches high down the middle of the bed under the under bed clothes; this prevents the patient slipping away.

In moving the patient be very careful not to drag him by

the shoulders, but lift him by placing the arms under the body firmly and gently moving him, if there is some one to help, one on each side, join hands under the hips and shoulders, and lift steadily from you.

It is an excellent plan to have a lounge in the sick room to which the patient may be easily transferred, so as to permit the entire removal of the bed clothes, to the open air, where they should be spread out upon the line, and thoroughly aired and sunned every fair day. Before putting the patient into them they should be warmed, and any possible dampness they may have absorbed be entirely removed. I give a cut of the best possible couch that could be used for this purpose. (See Fig. 2.) It would be found a great comfort to every family, and made at a small expense. Length of seat inside six feet and three inches; breadth 28 or 30 inches; height of the seat from the floor, thirteen inches. The swing frame is three feet long, and is fastened three feet from the head board by a very large pin or screw. The seat should be of sacking, and a thick hair mattress or cushion for a bed to be divided into two parts, where the swing frame is fastened. The frame is fastened by large screws at *f. f.* The supporter is fastened by large and strong hinges to the upper part of the frame, and is moved into notches made in the frame of the seat. A piece of sacking is fastened over the frame leaving it loose especially at the top, and leaving a space at the top to make room for the pillow, so that the head may be thrown back a little. The frame and support must be thick and strong. When not in use for the sick the frame may be laid down and the cushion laid over it, and with a frill or valance around it, it makes a good looking and comfortable chamber couch, or a lolling sofa for a sitting room. Such a couch saves much labor to friends and nurses because it is so low and so easily moved. It should be provided with strong castors, and all parts of it should be strong and well put together.

As soon as the patient is able to get the air, the cut Fig. 3 will show an excellent contrivance for securing exercise

in the open air. This can be easily made of the back wheels of a child's wagon that are strong enough to bear the weight. Nothing but shafts are needed and a common splint rocking chair with a foot board nailed across the front rockers on which to rest the feet. Slip the chair back to the axle of the wheels, so that the shaft will slip under the seat, and lift it up. In this way very weak patients can be rolled through the garden without any special use of strength. There is no way of relieving the weariness and aching of a patient, more effectual than by rubbing the limbs and arms with the bare hand of a healthy person. Those who believe in animal magnetism would say that by this method, the well person imparts a portion of the magnetism of a healthy body to aid in restoring the sick. Those who do not believe in it, will say that it soothes and strengthens the nerves. Either way it is a great comfort to a suffering invalid. It is unhealthy to sleep with a sick person, especially one who has lung complaints, as the breath and effluvia from the sick sometimes communicates disease, even in complaints not contagious. Young children should not sleep with the aged, because their healthful fluids will be absorbed. Before finishing this subject we will mention two very simple contrivances which are very useful. Take a small towel about ten inches wide, and eighteen inches long; sew on a wooden roller, or stick in each end. When necessary to apply hot cloths in inflammation, put the towel to be applied in the towel sewed to the sticks, dip it in the hot water, and wring it in it, by twirling the sticks—thus avoiding the hot water on the hands; as the inflamed part will bear the application much hotter than the hand can bear it. A screen in a sick room, consisting of three or four leaves is of inestimable value as used to shade the light, heat, or when necessary for any patient, to protect the bed for a few moments. This screen may be made as beautiful as possible, though it answers every purpose covered with dark cambric or cretonne. The frame can be purchased at a furniture store, or simply made by a carpenter.

The *Scientific American* furnishes the following simple arrangement as a remedy for the evil generated by burning a kerosene lamp in a sick room at night. "Take a raisin or any suitable box that will contain a lamp when set on end. Place the lamp in the box, outside the window with the open side facing the room, secure the box; the lamp burns quite as well outside, and a decided improvement of the air in the room is experienced.

Before leaving this subject we will consider the nurse, and her qualifications as such.

Medicine, surgery, pathology and above all hygiene have made immense strides. Nursing, their agent, has to be trained up to them. We hail, as creatures of incalculable good, the training schools for nurses that are springing up in various parts of our country.

Florence Nighingale says, "Nursing needs its instruments nearly as much as surgery, and yet more than medicine. The physician prescribes for supplying the vital force—but the nurse supplies it. Training is to teach the nurses how God makes health and how he makes disease.

Training is to teach the nurse to know her business, that is to observe exactly, to understand, to know exactly, to do, to tell exactly, in such stupendous issues as life and death, health and disease. Training is to enable the nurse to act for the best in carrying out her orders, not as a machine, but as a nurse, like an intelligent and responsible being. Training has to make her, not servile, but loyal to medical orders and authority. True loyalty to orders can not be without the independent sense or energy of responsibility, which alone secures real trustworthiness."

A really good nurse must needs be of the highest class of character. It has been said, and not inaptly, "a good nurse should be the 'sermon on the mount' in herself."

In the employment of a nurse, we should, in reference to her qualifications as a guide to our choice, have under consideration her age, strength, health, temper, disposition, habits and education. Her age should not be under twenty-five, nor exceed fifty years.

This period is fixed upon, on account both of the physical powers and the moral conduct of the individual. Under twenty-five, the strength of a woman has not reached its maturity, and is scarcely adequate for lifting patients in and out of bed, and for many other duties which require strength, connected with the office of a nurse; but the strength and the muscular power in females begin to fail after fifty-five, when the natural transition from maturity to decay takes place. There is also a greater proneness to disease at this age than in the middle period of life.

Strength.

Whilst strength is requisite, the frame should be such as to indicate activity. The stature should not exceed the medium degree; a little below this being less exceptionable than a little above it, provided the appearance displays a frame well knit together. Obesity and heavy movement are objections, as they are frequently connected with self-indulgence, defective energy, and an inability to keep awake, or to be easily aroused from sleep.

Health.

None of the qualifications of a sick-nurse are of more importance than health. An individual who herself requires attention is ill calculated to attend upon others.

Temper and disposition.

It is scarcely requisite to say that an attendant upon the sick should possess a happy, cheerful, equal flow of spirits; a temper not easily ruffled; and kind and sympathetic feelings; but, at the same time, not such as to interfere with firmness of character.

When the mind is weakened, and the nervous system morbidly susceptible, a harsh look or an unkind expression sinks deep into the mind of the invalid; and when the disease is of a nervous kind, a melancholy, anxious, or forboding look, or one which in any degree indicates an apprehension of danger,

either in the physician or the nurse, instantly excites alarm in the mind of the invalid; and may counteract, in a great measure, the influence of the medical treatment.

On the other hand, a collected, cheerful expression of countenance, in the attendant on the sick, is likely to inspire hope, and to aid the efforts of the physician for the recovery of his patient.

The general disposition of a sick-nurse should be obliging. Every little office which the invalid may require to be done, should be performed at once, and, without the smallest apparent reluctance, even when the necessity for its immediate performance is not absolute. There is also an earnestness of manner, which should, if possible, be obtained, or acquiesced in, by the sick-nurse; as it impresses the idea that she feels deeply interested in the case; a circumstance which is always highly appreciated by the patient.

With respect to gossiping, it is a detestable habit under any circumstances; but, in a nurse, it may be productive of the greatest danger, produce family feuds, and a thousand other evils. In her *habits*, a sick nurse should be sober, active, orderly, and clean and neat in her person.

The *activity* essential for a good nurse does not imply a bustling or fidgety manner, but a quiet, steady method of proceeding in the performance of her duties, equally devoid of fluster, turbulence, or noise. This activity is generally associated with orderly habits; a most valuable qualification, and without which the sick-room becomes a scene of confusion and disgust. Every medical man must have witnessed this state of disorder with regret; when, on visiting his patient he finds no chair to sit upon, until some article of bedding, or of clothing, be removed from it, and the seat dusted with the apron of the nurse; and when a former prescription, or any thing else, is wanted, he must wait until the nurse rummages out half a dozen of drawers in search of it.

Another quality, usually conjoined with activity and orderly habits in a nurse, is cleanliness in her own person, and in that of her charge, as well as that of the sick-room. The

dress of a nurse should be simple and neat, without trimmings. Nothing is more out of place than a fine lady attempting to perform the duties of a nurse. Whatever may be the stuff of which it is made, the apron should have pockets in it, in the fashion of the Parisian servants. Neither the gown, nor any of the outer garments, however, should be woollen, especially if the disease be infectious; as owing to its spongy tissue, woollen is apt to absorb and retain the infection. When the disease is decidedly infectious, the apron of the nurse should be made of glazed calico, or oiled silk.

Every nurse should be able to read and write. The better informed, the less likely is she to be biased by low prejudices. A nurse, also, who cannot read, may be the cause of much mischief in the administration of medicines. Without knowledge a nurse is without comprehension, without comprehension she is an automaton and as such unfitted for a sick room.

The term "*an experienced nurse*," is supposed to comprehend every good quality. Experience deserves to be much and justly prized in a nurse, were the term not too frequently misapplied, and confidence placed in the nurse merely because she is advanced in years and has seen much, without any inquiry as to her capacity for observing, and making a proper use of what she has seen. Numbers of years and much opportunity are not a guaranty of wisdom nor of true experience. Age may undoubtedly be supposed to afford the means of enlarging the ideas; but every one is not endowed with the power of benefiting by the best opportunities; and it is here that the advantage of education are displayed in the nurses. Without it seventy years may have only added to her sum of stupidity. The poor woman has had eyes; but she has never fixed them with attention upon what was before them; and when she has accidentally observed, having no capacity for generalization, the observations, like most isolated facts, have been lost. She is a mere creature of routine; a machine moved by custom or prejudice; whereas the properly educated nurse acquires the power of observing and comparing, and consequently of reflecting and drawing proper conclusions.

LONGEVITY.

In churchyards and cemeteries of civilized people there is not, and never could have been, any considerable error as to age recorded. Every individual, not being a savage or idiotic, cherishes his birthday and remembers his age. For this reason, tombstone age records acquire a statistic value. They lead us to form our own conclusions as to the number of those chances whereby the normal threescore years and ten of man's appointed age are curtailed by accident or disease.

Tombstone records confirm what the personal observation of each of us must have suggested, that of all who die, comparatively few die of old age. Doctors, moreover, will tell us that even when old age is said to be the cause of death, this is seldom literally true. Old age may be compared to a waning fire, that, if let alone, will of itself burn out, but which rarely is let alone. Something happens to the waning life fire, something stirs it rudely or incautiously, and lo! out it goes. Even old Parr himself, though dying at the patriarchal age of one hundred and fifty-two, cannot be said to have died from the wearing out of the animal machine. The celebrated Harvey who dissected him found no symptoms of decay. It was Parr's misfortune (if I must call it so) to have been taken by the Earl of Arundel to the Court of Charles the First, where he ate and drank luxuriously, perhaps for the first time in his life. The change of diet was more than his constitution could stand. Old Parr was killed by kindness.

Notwithstanding Old Parr's great age, I know not why his name should lord it over other names of men his seniors. Even in British history we meet with a more remarkable example of longevity; take, for instance, Thomas Carn, who,

according to the parish register of St. Leonard, Shoreditch, died January 28, in the year 1588, aged two hundred and seven. Even admitting that some sort of error has crept into Mr. Carn's annals, I can lay my finger upon one other English patriarch at least older than old Parr,—Henry Jenkins. There can be no reasonable doubt as to this worthy's age, seeing that incidents remembered by him fix it. Once, Jenkins was subpœnaed as witness on a trial at the Yorkshire assizes to prove a contested right of way, when he swore to near one hundred and fifty years' memory. The judge cautioned him to beware what he swore, because there were two men in the court, each above eighty, who had both sworn they knew of no such right of way. "Those men," replied Jenkins, "are boys to me." Upon which the judge asked those men how old they took Jenkins to be. They answered that they knew him very well, but not his age, for that he was a very old man when they were boys.

The published and available record of extreme old age lend confirmation to the belief, that among well-to-do people more animal food is consumed than accords with health and longevity. Nearly all the very old people who live have been recorded, were in the lower middle ranks of life ; hardly above want, as we should now say.

With regard to locality and climate, extreme heat and extreme cold are less favorable to longevity than are the conditions of a temperate climate ; nevertheless, Eaton's catalogue has records of men who have grown very aged in India, the West Indies, in Sweden and Russia. Amongst the circumstances that favor longevity, climate is prominent, and the sort of climate most favorable to longevity has already been indicated.

Diet comes next in order, and this should be moderate, but nourishing. A rainy atmosphere in a cold climate does not seem insalubrious, otherwise Ireland would not number and have numbered such an array of old people ; not to state that a considerable proportion, perhaps the greatest, of English and Scottish patriarchs have resided in the western, and

hence the rainiest counties. The physique of an individual, his size and shape, are important considerations. Neither the very big nor the very small are usually long-lived. Very tall people are not so likely to be long-lived as people of medium height. Tallness often originates in the disproportioned growth of some one part of the body, a circumstance conducive to weakness. Nor is this all to be alleged against extreme tallness. Very tall persons are apt to acquire a habit of stooping, whereby the vital organs are compressed. Persons of medium height rarely stoop, and usually they are more active than tall persons. Medium sized and short persons have this, however, to be set down to the debtor side of their account. They are prone to corpulence, a condition unfavorable to longevity. Physiologists tell us that the endurance of animal life mainly depends on extent of thorax and moderation of the heart's impulse. Neither the easily excited nor the easily depressed are commonly long lived. Intense study is known to be unfavorable to long life. Out of one thousand seven hundred and twelve persons who lived about a century Fontenelle—who did not quite reach one hundred years—is the only author of note. His temper was remarkably tranquil. His buoyancy of spirits—youth of old age, as the French call it—remained to the last.

The physiologist Blumenbach has made a graphic sketch of the progress of human life onwards to the grave. Having traced it up to manhood, of this he says, it is the longest and noblest epoch of life. Our nature is then at its highest perfection. The bodily functions are most vigorous and regular, and that noblest prerogative of the mind, a mature judgment, is established. Advancing in years, the powers of life decrease. Then comes old age, dulling the senses external and internal. The hair grows white and thin; the teeth gradually drop out; the head droops upon the neck; the body upon the legs; even the bones begin to waste. Thus do we come to the extreme point of physiology, death without disease, the euthanasia of old age. Then the extremities grow cold, the eyes grow dull, the pulse beats low

and small, sometimes intermittent. Next the breath stops, stops and returns, stops forever with one long forcible expiration. Blumenbach came to the conclusion that there is no period which can be said to be entitled by its marked regularity and frequency to be considered the natural term of advanced old age. What he was able to collect on that point, from comparison of a vast number of bills of mortality, was that in Europe no inconsiderable number of old men reach their eighty-fourth year, whereas few get beyond it, and that from one cause or other only one in every seventy-eight human beings in a thousand can be said to die in the condition of euthanasia. Blumenbach himself, it may be here remarked died in the beginning of 1840, aged eighty-eight, having retained his faculties to the last. Up to a very short time before his death he continued to lecture with all the spirit and humor that had ever characterized him.

It was Hufeland's belief that but for extraneous causes man might still attain to the age of one hundred and fifty or sixty years, or even more. "We may with the greatest probability assert," he says, "that the organization and vital powers of man are able to support a duration and activity of two hundred years." This assertion he believes to be strengthened by agreeing with the proportion between the time of growth and the duration of life. Generally speaking, an animal may be considered to live eight times as long as it grows; now man hardly stops growing till twenty-five, and eight times twenty-five makes up two-hundred. The wonder is, not that animal machines do not last longer, but so long. Take the mechanism of the human body, for instance, and regard the wear and tear of it. The human heart beats on an average one hundred thousand times daily, its duty being to keep from fifty to sixty pounds of blood—asleep and awake—in unceasing motion. What machine made by human hands could withstand this wear and tear without being in a short time worn out? Animated bodies would soon be destroyed were there no renovation, old material cast off and new material added. It has been estimated that in very short

intervals our material bodies are changed, made up of particles entirely new. Let me conclude by delineating according to Hufeland the physical characteristics of a man who may be expected to live long. "He has a proper and well proportioned statue, without, however, being too tall. He is rather of the middle size, and somewhat thick-set. His complexion is not too florid; at any rate, too much ruddiness in youth is seldom a sign of longevity. His hair approaches rather to the fair than to the black. His skin is strong, but not rough. His head is not too big; he has large veins in the extremities; his shoulders are rather round than flat. His neck is not too long; his abdomen does not project; his hands are large, but not deeply cleft. His foot is rather thick than long; and his legs are firm and round. He has a broad, arched chest, a strong voice, and the faculty of retaining his breath for a long time without difficulty. There is harmony in all his parts. His senses are good, but not too delicate; his pulse is slow and regular. His stomach is excellent; his appetite good, and digestion easy. The joys of the table are not to him of importance; they tune his mind to serenity, and his soul partakes in the pleasure which they communicate. He does not eat merely for the sake of eating, but each meal is an hour of daily festivity. He eats slowly, and has not too much thirst; the latter being always a sign of rapid self-consumption. He is serene, loquacious, active, susceptible of joy, love and hope, but insensible to the impressions of hatred, anger and avarice. His passions never become violent or destructive. If ever he gives way to anger, he experiences rather a useful glow of warmth, an artificial fever, without the overflowing of the bile. He is fond, also, of employment, particularly calm meditation and agreeable speculations. He is an optimist, a friend to nature and domestic felicity. He has no thirst after honor or riches, and banishes all thoughts of tomorrow. Such is Hufeland's picture of the man who may live long.

A German observer has recently calculated the average longevity attained in different professions. His information,

if trustworthy would be very interesting, not merely to insurance offices, but to young men settling the difficult question of their employments for life. If a youth will be content with fifty-six years, he may become a doctor; if he requires a year more, he may be an artist; if he wants fifty-eight years of life, he may go to the bar; but, in order to attain to sixty-five, he must become a clergyman.

Various and many are the queries that might arise as to why this difference in the average lives of those who follow the various professions; this, we have neither time nor space to consider.

Why he that courts the muses should be subject to death at the average age of about fifty years, the lowest, we believe, of any in the intellectual pursuits of life, is perhaps, one of the unanswerable queries.

Poetry, we should be inclined to say, from a cursory inspection of the most accessible facts, is almost as destructive as those trades which are proposed to be the subjects of government interference. It is as bad as razor grinding. Looking through any list of English poets, the number of early deaths is startling. Burns, and Byron, Shelly, and Keats, and Chatterton will occur at once. To the list of those who died before fifty we may add Spenser, Thomson, Collins and Goldsmith. Shakespere managed to get just beyond his fiftieth year, and Pope and Gray got half way from fifty to sixty; but an aged poet is an exception of the proverbial kind. A short list of metaphysicians gives an average of 68 years, or a length of life superior even to that of the clergy; but we admit that it would be desirable to base any decided theory on a wider collection of facts.

There is of course nothing surprising in these results. The true philosophical temperament is precisely that which is favorable to long life. A man who never irritates himself about anything, who never subjects his machinery to an unnecessary shock, will go on living when a far stronger man, animated by more troublesome passions, will beat himself to pieces against the world.

INVESTIGATION OF DISEASE.

BY CONSIDERATION OF THE CAUSE. GENERAL CHARACTER AND

PARTICULAR SYMPTOMS.

The Pulse ; its variations and indications.

Centuries ago, Galen and his disciples reduced the study of the pulse to a science and to such perfection (?) do the chinese claim to have brought its study that they are able (?) to distinguish diseases by feeling the pulse of the right or left hand, or to determine the sex of the child, in utero, by the pulse of the pregnant woman.

We have not arrived to that degree of perfection, nevertheless the pulse is to us a volume, abounding in valuable information. It enlightens us on the actions of the heart, on the state of the artery itself and of the blood. In the healthy adult a beat of some resistance is felt, recurring from sixty-five to seventy-five times per minute. It becomes slower with advancing years. In very advanced age it may and does sometimes rise. The pulse of infancy is from one hundred to one hundred and twenty, and from ninety to ninety-five during the third year. Digestion, rapid breathing, forced respiration and warmth quickens the pulse. During sleep or when reclining the pulse falls.

Mental excitement and the digestive process increase the frequency of the pulse ; it is also somewhat more rapid in the morning than in the afternoon, during the day than during the night.

The finger applied to a living artery feels pulsations corresponding to the contractions of the left ventricle, both in

frequency and force ; this is called the pulse. It is caused by the jerking manner in which the blood is forced into the aorta, and is communicated, but not caused, by the elasticity of the vessels. The pulse-wave is not instantaneous throughout the system ; it varies, according to distance from the heart, even to one-sixth of a second. The jerking force is seen when an artery is wounded, as the blood issues in successive jets, differing from the continuous current from a vein. The character of the pulse depends essentially on the force of the heart, or the perfect action of its valves, on the quantity and quality of the blood, and on the condition of the arterial walls ; thus a weak heart, a contracted valvular opening, or a small supply of blood, will produce a weak pulse, while the opposites of these will cause a strong pulse. The qualities of softness, hardness, fullness, compressibility, etc., which tell so much to the physician, depend on the resistance of the arterial walls, by virtue of their vital contractility or tonicity ; the force required to propel a fluid through a tube with yielding walls is much greater than that which will carry it through one, even of smaller size, with rigid walls ; hence a loss of tonicity in the arteries retards the flow of blood in them. As this tonicity is increased by cold, and diminished by heat, these agents become very valuable, though simple, remedies. This vital contractility, which ceases with life, is different from the elasticity of the vessels, the latter continuing long after death ; the former can have no power in propelling the blood ; it only regulates the quantity flowing through the arteries, by setting bounds to their distension.

Two or three practical rules will prove of great assistance to those not physicians, who wish to observe the pulse.

First. Avoid feeling the pulse abruptly until the patient has been, where practicable, engaged in conversation.

Secondly. Assure yourself that some casual circumstances may not have excited, or otherwise affected the patient, and thereby disturbed the pulse.

Thirdly. Place two or three fingers on the artery on the inner side of the left wrist of the patient, having the thumb so

applied to the back of the wrist, that the pressure can be modified or increased, if necessary ; and that by varying the degree of pressure, having a considerable length of the artery under the three fingers, you may be able, not only to distinguish the number of the beats which occur in the minute, but also their particular character ;—whether by pressure you can apparently suppress the rush of blood through the vessels ; or whether when strongly pressed, the current seems to worm through beneath the fingers like a wire ; or whether the bound is so strong as apparently to force the fingers away, or whether the pulsations are sudden, distinct, and abrupt, or whether the pulsations appear to linger and to pass languidly ; or whether again, there is no distinct pulsation, but a rapid thrill, rather a vibration than a pulse. In order thoroughly to distinguish those variations, it is imperative that the attention should be centered in this one object, and not distracted by other circumstances.

Bearing in mind the rules just given, on our approach to the bedside we will observe in the pulse, first, its frequency. While increased frequency of pulse denotes like frequency of the heart's action, we should bear in mind this fact, that the heart may be quickened from so many and varied causes, either temporary or permanent in their action, that, taken by itself, there is no significant diagnostic meaning in an increased frequency of the pulse. So, also, we may say the same of a *slow* pulse, happening as it does, in so many different states, and in some persons is naturally very *slow*. Second, *Rhythm*, this is often perverted, The beats may be unequal, one or two intermit. From digestive troubles or debility the pulse may be irregular, but more frequently it indicates cardiac or cerebral lesion. We are very apt to permit our fingers to slip from the artery, thereby causing a seeming irregularity.

Third ; *Volume, Strength*, these are of vastly more importance than the preceding. The latter, though not identical, are much alike and not infrequently associated. When the beat of the artery is large, we call it a full pulse. This is owing to the distention of the vessel with blood—its com-

plete expansion with every beat of the heart. The full pulse is therefore, the pulse of plethora ; the pulse of the young and robust in health, or in inflammatory disease ; the pulse in the early stages of fevers, or in the obstruction of the capillaries. It is usually the pulse of power, just as its opposite, a small pulse is usually the pulse of debility. Yet a full pulse may be produced by the distention of an artery which has lost its tone, and which the finger easily compresses. Such a pulse, the "gaseous pulse," denotes exhaustion and proves that a full pulse and a strong pulse are not always synonymous. Indeed, into the idea of *strength* something more than mere fullness enters. *A strong pulse is a natural pulse heightened in all its characters.* It has more fullness, but, in addition, more impulse, and less compressible, than an ordinary pulse. A strong pulse, therefore, indicates activity of the contraction of the heart, and a normal, perhaps increased tonicity of the arterial coats. Its opposite, a weak pulse, betokens want of force, often want of healthy blood. It is generally small as well as weak. Yet as the full pulse is not always strong, neither it is always weak. Fourth, *its resistance.* To have a just appreciation of the morbid action of the pulse, and a proper knowledge as to the application of remedies, we must be able to determine whether we have a soft and compressible or a hard and resisting pulse. In the soft compressible pulse there is implied loss of tone to the vessels, deficient impulse, and is the pulse of low fevers and of debility. It is, also, denotes returning health following a tense state of the artery, and signifies imminent danger passed. On the other hand, the hard, tense pulse, whether the beat is full or small, slow or frequent, it indicates the fact of the blood being driven along the arterial system with force, not only denoting increased contractibility of the arteries, and high wrought power, but also that the irritation has implicated the coats of the arteries as may be observed by their extreme resistance to the fingers. In active, violent inflammations, or sometimes, not often in states of extreme and continued excitement, without inflammation, we find the tense pulse. The hard and re-

sistent beat may be caused by changes in the coats of the arteries. Commonly with hypertrophy of the left ventricle the tense pulse will be found where no local alterations, nor acute symptoms are observable to explain the sympathetic disturbance of the heart and arterial system. If you find a person with a pulse beating from ninety to one hundred pulsations per minute, with a hot, flushed skin, parched tongue and lips, headache, etc., it is indicative of fever if also; you find difficulty in breathing with pain about the chest there is probably some inflammatory disease of the lungs. A slow pulse—fifty to sixty—coldness of skin and extremities is indication of disease attended by great prostration and debility. Where great debility, in certain cases is attended by a small, tremulous but very rapid pulse of one hundred and ten to one hundred and thirty, it is one of the most dangerous signs that can exist in connection with disease. Such, interested reader are some of the meanings of the various characters of the pulse. Perhaps more succinctly stated. The pulse met with in a large group of inflammations below the diaphragme as in gastritis, enteritis and peritonitis is the tense frequent and contracted pulse. That in collapse prostration or marked debility is a very frequent, yet feeble and compressible pulse. That which is frequent changeable in the rhythm, is for the most part produced by disease of heart or brain. The pulse of most idiopathic fevers is that of a frequent, full or small, but rarely tense pulse, if unconnected with acute symptoms, a hard, full or small pulse, bounding or not, leads to the suspicion of cardiac disease or possibly of an affection of the artery itself. In the major portion of acute diseases in robust persons, or in active inflammations a pulse hard, full and frequent occurs. It requires no inconsiderable amount of attention to understand the different kinds of pulse, but by a little practise you will be able to count the pulse correctly, though it may exceed one hundred and fifty, the usual limit which it is said the pulse can be counted.

But by counting every second stroke of the pulse there is no difficulty in getting the exact number, even if it be two

hundred in a minute, and even if there were three hundred pulsations in a minute, admitting the possibility of so many distinct impulses, the number could be ascertained without difficulty by counting every third stroke, and multiplying the result by three. Sounds may also be counted in the same manner.

Spontaneous discharges of blood.

If from the nose, in cases of inflammation of the brain, severe determination of blood to the brain, or inflammatory fever, are to be considered as indicative of an wholesome crisis.

Discharges of blood may be the crisis of a disease, particularly of severe fever; but they may occur as the result of local determinations of blood or inflammations, of overdue fullness and distension of the vessels, of determination of blood to a weak part, or, generally of deficiency of firmness and strength in such part, as when a blood-vessel is broken, or again, as most critical indications of a putrid condition or extended ulceration.

TEARFULNESS AND LAUGHTER.

THEIR INDICATIONS.

Copious watering of the eyes, in an early stage of fever, commonly forbodes measles; or if in the course of acute fever, it denotes determination of blood to the head.

Tearfulness or weeping, from the most trivial causes, is one of the manifestations of hysteria, the same being the case with laughing. The two symptoms are generally combined, and the one succeeds or runs on into the other. In such cases laughter is generally the first symptom, which becoming prolonged and convulsive, is converted into weeping.

An excessive susceptibility and tearfulness or weeping upon the slightest vexation, is similarly indicative of hysteria.

THE URINE.

ITS VARIETIES AND THEIR INDICATIONS.

1. *The healthy appearance of the urine.*

Unaffected by age, sex, method of living, particular articles of food or drink, the season of the year, and as a most important exceptional condition, the constitution of the patient,—the urine should be of a pale, brightish yellow or straw color, remaining clear after standing, precipitating no sediment, have a faint aromatic odor, but be devoid of offensive smell.

In old age it is consistent with health that the urine should be offensive, lessened in quantity, and deepened in color.

Amongst females a degree of sediment is not always an unhealthy sign; with them the urine is habitually of a paler hue.

A person of a very active life, with considerable physical exertion, should pass darker and more scanty urine than the standard; in an individual of very sedentary habits, it should be more copious but paler.

Excess of stimulants will render it pale and copious, whereas within about six hours after eating it will commonly be cloudy.

The greater amount of open air exercise which the summer permits, and the necessarily increased perspiration render the urine darker and scanty.

2. *The proper time and method of investigation.*

The urine should not be examined within six hours after a meal, and such of the urine as is reserved for investigation

should then be set aside where the temperature is even and moderate for two hours, and not exposed to sudden transitions of temperature in the interval.

3. *The variations apparent in the urine, and their indications.*

1. In the progress of fevers, the urine affords the most valuable characteristics, varying with each stage.

So long as it continues unabated, without any tendency to a crisis—the urine, of whatever color, is emitted, and remains after standing, perfectly transparent and clear; or, in other cases, (especially in nervous diseases, and fevers in which the digestive functions, are predominantly implicated), the urine will be emitted and continue without deposit after standing, thick and cloudy.

2. As the crisis of the fever approaches, the urine, previously clear, will become thick, and form a half floating cloud. If the cloud formed in the urine sink, we may anticipate a wholesome resolution.

The crisis of the fever is distinguishable by the precipitation of a sediment, in cases in which the urine has previously been clear; and by the precipitation of a sediment, and clearness and transparency of the rest of the fluid, where the urine had previously been muddy and thick.

The sediment should be smooth, undisturbed, light—assuming an apparent, slightly rounded elevation,—white, or slightly grey. It should not constitute more than one fifth or one fourth (at the most) of the whole volume, and it should be deposited quickly.

If black, or very dark, it indicates a putrid condition.

If of the color of bile, or red, it characterises an intermit-
tent or rheumatic type of disease.

If white and gritty, or deposited from dark turbid urine, there is a depraved habit of body, or calculus or stone in the bladder.

If disturbed, irregular, of a purple hue, muddy, heavy, and constituting from half to two thirds of the whole volume discharged, it is a bad sign.

4. In general :—If the urine be red when the pulse is accelerated, there is a positive indication of constitutional fever, inflammatory action, and increased internal heat.

If of a deep saffron color it represents the admixture of bile in the blood ; and if this hue be conveyed to the linen, it decisively indicates jaundice.

If it be thick and black, there is an indication of such a degree of inflammatory or putrid condition, as resolves itself into gangrene.

If bloody, turbid, thick, and depositing an excessive proportion of sediment, we have an evidence of approaching decomposition of the blood.

If, other things being equal, it be characterized by the floating of an apparently oily substance on its surface, we have an evidence of what may be termed advanced constitutional decay.

If matter (pus) be mingled with it, there must be internal suppuration.

If the urine of children appears milky, we have reason to suspect the presence of worms.

If it be thick, but pale, or very changeable in appearance during the course of a fever, the disease is of a nervous kind.

If it be clear, transparent and watery, and a continual urging to discharge it, the affection is spasmodic.

If it be bloody, there is probably inflammation about the bladder and kidneys.

If slimy, we deduce catarrh of the bladder, or obstruction of its neck, or stone.

5. As regards the manner or sensations which characterize the passing of the urine : If involuntary, the affection is of a paralytic character ; but it should be noticed accurately, in cases of fever, whether it is really involuntary, if so, it is a serious manifestation.

If the flow be either difficult, painful, or impeded, it represents disease of a local, inflammatory or spasmodic nature.

6. Or further :—It should be noticed that sudden check

of perspiration will often occasion an exceedingly copious and pale discharge of urine, whereas excessive relaxation of the bowels, the use of purgatives, or profuse perspiration, will frequently cause a darker and more scanty discharge.

Chemical and microscopical distinctions, and the distinctive features of other varieties of urine, have been omitted as best suited to works professedly treating on that subject.

SOUNDS EVINced BY THE CHEST.

THEIR INDICATIONS.

The only varieties which are appropriate for the consideration of unprofessional persons, are plainly manifested by tapping upon the chest with the first two fingers of the right hand, or upon the first finger of the left hand laid flat upon its surface, and which we shall confine to clear and dull sounds. Auscultation, or the act of listening by the application of the ear to the chest, immediate, by the unassisted ear; mediate, by the stethoscope, requires very considerable pathological and anatomical knowledge, and considerable experience to ensure correctness.

The clear sound, or that which conveys the idea of an unoccupied cavity, is a sufficient evidence that the cavity of the chest and the lungs are free from abnormal formations or accumulations such as blood, matter, tubercle, or water; and therefore indicates soundness.

The dull or muffled sound, or that which conveys the idea of a cavity, the resonance of which is impeded, indicates the presence of accumulatives, as of tubercle, and consequently unsoundness. The sounds elicited anteriorly, posteriorly, and laterally, on one half of the chest, ought to be carefully compared with those of the other; but as the sound is naturally dull over the region of the liver, we must not expect to find it clear below the sixth rib anteriorly, the eighth rib laterally, and immediately beneath the shoulder blade posteriorly or on the region of the heart.

THE BREATHING,

ITS VARIETIES AND INDICATIONS.

In many diseases, especially of the respiratory organs, the manner of breathing, the pains developed, and the sound emitted, are the only signs on which we can rely for a distinctive appreciation of the nature of the affection with the reservation, however, that the relations between the pulse and respiration are never to be overlooked. In all diseases, especially of an inflammatory or putrid nature, much important insight into the character of the malady is acquired by the consideration of this function.

Respiration in health.

This function is powerfully under the influence of the nervous system, independent of any voluntary effort. On close observation it will be found, as an act in health, slow, full and easy, in frequency, from fourteen to twenty per minute in adults, although this ratio is easily disturbed, averaging, about four pulsations to each respiration, with respiration rather longer than inspiration, when natural,—twelve to ten in males, and fourteen to ten in females.

Variation of respiration.

Continued and rapid breathing is indicative of fever or inflammation, involving constitutional disturbance. Frequency and shortness with inadequate expansion denotes obstructive oppression of the lungs, as in their congestion inflammation, or from dropsy, (affecting chest or abdomen,) inflation of abdomen with gas, (as in colic,) or by an alteration in the substance of the lungs.

Slow breathing, when less frequent than in health, with deep respiration at intervals, as of a convulsive effort, is frequently associated with spasmodic affections and swooning, and is an evidence of want of strength.

The quick respiration—when *in*-spiration is incomplete, and quickly succeeded by *re*-spiration—is occasioned by some oppression or obstruction, which renders the expansion of the chest so painful as to hurry the operation of decreasing the pressure by expelling the air; it is almost invariably the result of severe inflammation of the intestines, or lungs, and commonly occasions the more sudden and spasmodic effort to expel the air, as manifested in cough. It is opposed to the healthy slowness of respiration; that is, to the deep, slow, protracted inspiration and respiration, with power to hold the breath.

Tardiness may be excessive from weakness.

Deep or long breath—when protracted, as to the inhaling and exhaling, noiseless, and evidently without effort, is one of the characteristic features of healthy respiration; but when deep, long breath, is evidently the result of severe effort, somewhat difficult, irregular, sonorous, and abrupt, it is an evidence of spasm, especially involving the anterior portion of the chest and abdomen, or, sometimes, of great fulness of the vessels about these regions; or, again if there be a long pause between expulsion and re-inspiration, a condition of stupor.

Difficult breathing embraces several varieties. It may be associated with coldness of the extremities, confusion and heat of the head, and empty, small, and remittent pulse, owing to the obstructed and dilatory progress of blood through the lungs. If casual, difficult respiration may be attributed to some accidental, or even mechanical cause of oppression. As a symptom of disease, it would arise from the presence of any obstructing matter, blood or water, impeding the action of the lungs; or as a symptom, unattended with any evidence of inflammation, it would be occasioned by spasm.

Moaning or sighing breath is a variety of difficult respira-

tion, and points to the enveloping membranes of the lungs as the seat of affection.

Oppressed breath may arise either from impeded digestion, particular conditions of atmosphere, or affection of the lungs.

Panting breath marks obstruction, such as thickening of the lining membrane in the windpipe and bronchial tubes.

Suffocative breath—when the breath is totally arrested by the recumbent position, it may result from extravasation of blood on the lungs, from accumulation of water, from alteration of the substance of the lungs, or from paralysis of those organs, in any case it is a most urgent symptom.

Hot breath indicates fever ; if very hot, particularly if the extremities be cold, it is a positive index of general, internal inflammation or more particularly of inflammation of the substance of the lungs.

Cold breath, indicates a deficiency of vigor, and sluggish, languid circulation. It may result from obstructions which prevent the effectual passage of blood through the lungs. As a symptom appearing with the sudden suspension of pain and with general dullness of sensation in inflammation it indicates internal mortification ; in any case, as attendant upon the last stage of critical disease, it is a fatal sign.

Unequal breath—an expression which conveys its meaning—may, in very severe cases, result from obstruction (chiefly in the windpipe and air tubes,) or may be occasioned by purely casual circumstances ; as, for instance, spasmodic affection of the nerves connected with respiration.

Noisy breathing, attended by unnatural sounds, is subject to several modifications, as, whistling, which in the majority of cases, indicates spasm, or accumulations of mucus in the windpipe.

Rattling breath, as in croup, may result from mucus or blood, more frequently the former, partly obstructing the air tubes ; when the result of paralysis of the lungs it is a fatal sign.

Flapping breath, accompanied by a sound as of the sharp

beating to and fro of a valve, indicates the presence of very adhesive mucus in the minute bronchial tubes.

Oppressed breathing denotes obstruction of the lungs as in frequency, and shortness.

Offensive or fœtid breath must be considered in relation to other circumstances, as, for instance, undue abstinence from food, and also the quality and kind partaken of. The menses are often attended by it. Excessive use of mercury is another ascertainable cause, as also carious or hollow teeth. Excess of animal food may occasion it. Inattention to the proper cleansing of the mouth and teeth, will almost inevitably induce it. As a general rule especially in the absence of any particular conditions, foulness of the stomach, the presence of worms, or other impure substances in the intestines, may be distinguishable by offensive breath.

The digestive function and the indications which they afford.

The function of these organs is to prepare the solid and fluid ingesta of the body, properly fitting them for absorption into the blood. The frequency with which the organs become the seat of disease may at least indicate a general probability of error in diet as the cause of their frequent derangement. Upon the healthy discharge by their function depend the assimilation and consequent nutritive properties of our diet. If the digestive process be regular and strong, little influenced by irregularities of living, it is indicative of a constitution possessed of internal vigor and reactionary power.

Persons of habitually strong digestive powers are more likely to resist the injurious effects of external circumstances; such as heat, cold, infective sorrow, anxiety, and the like; but, once attacked with disease, especially inflammation, they are usually seriously affected. Disease will be more likely to run a rapid course and to terminate quickly, than to degenerate into a chronic state.

If the digestive process be habitually weak, we have indication of precisely contrary conditions.

The evacuations and their indications. Constipation.

Suspended or deficient evacuations may be the effect of inflammatory tendency, or of muscular debility, or paralysis; of inaction of the lower intestines; or, again of deficient or of general debility of the system and poverty of blood. Suspended evacuations may, however, be occasioned by mechanical obstruction, as the lodgment of improper substances; while deficiency of discharge may result from excessive discharges or transpirations of another kind. Constipation is not infrequently to be regarded as an effort of nature to aid in the restoration of the powers of the constitution.

Very dark evacuations may be associated with costiveness or relaxation, and when not induced by the nature of the food, evince an exuberance of bile.

Hard evacuations are of various kinds—as hard and large, hard and small, hard and knotty; in general they exhibit a deficient degree of natural irritability in the lining membrane, more or less excess of internal heat, and deficiency of moisture.

Relaxation.—Not only less consistent; but more copious evacuations. It is subject to variations in frequency, color and odor. It may result from inflammatory or nervous irritability of the intestinal canal, or from the presence of obnoxious irritating substances and impurities, such as undigested food; from suppression of other discharges or emotions; or again from a debilitated condition of the bowels or of the entire system.

If the discharge be green, as in an infant, it denotes acidity; if dark, predominance of bile; if pale, deficiency of bile.

Spontaneous discharge should be distinguished from involuntary discharge, as being of little importance, and a common result when relaxation is present, and attributable also to the excremental matter being completely liquified.

Involuntary evacuations properly so called, attendant upon fever, and especially fevers of a typhoid character are indicative of paralysis and are to be looked upon with apprehension. Diminished evacuations, are not necessarily opposed to les-

send consistency, and may occur either with highly consistent or very liquid motions; they may be accounted for by general feverishness, imperfect expulsion or the presence of some irritative substances in the canal. They may occasionally be referable to spasm.

Straining is partly spasmodic, especially if the motion be only partial, very scanty or totally suppressed. But without spasm, straining may result from a greater or less degree of inflammation, or from the peculiar susceptibility of the canal to irritation, as in dysentery, and sometimes in diarrhœa.

Flatulency.—Wind in the stomach and intestines and its indications.

The generation of wind, either in the stomach or in the bowels, arises from the production of gas. If habitual and excessive, it is clearly indicative of weakness or derangement of nervous action, or tone in the stomach, if the wind be expelled upwards; or in the bowels if the intestines become enflated, or the wind be expelled downwards.

Flatulent distension of the abdomen, occurring in children, often identifies an additional morbid state—the presence of worms or mesenteric disease.

Flatulent, drum like distension of the abdomen during the course of fever, betrays want of vigor which may occasion serious results. If at the same time the abdomen thus distended be very tender, and severe pain be caused by pressure, local inflammation is indicated.

Nausea and vomiting, and their indications.

Nausea and vomiting point to either original, local or sympathetic affection of stomach. If these symptoms be simultaneous with unhealthy evacuations, both stomach and bowels are affected either simultaneously or sympathetically, or by the communication of the irritability from the one to the other.

They may be occasioned by mere sympathy, without local affections—(1) by sympathy with the womb in females, and

as indicative of the earliest stage of pregnancy ; or (2) by sympathy with the liver, as evinced by the pain or other symptoms emanating from that organ, or (3) by sympathy with the brain, as the result of irritation, or of oppression, occasioned by determination of blood, concussion, or water ; or (4) by sympathy with the intestines, as evinced by continued constipation. All these relations should be duly considered ; and, in the absence of any such remote causes, we may trace the origin of these symptoms to the stomach itself.

If habitual (1) to an organic derangement of that and neighboring organs.

(2) If both food and drink are thrown up as soon as swallowed, to inflammation, excessive irritability, or complete stoppage.

(3) If accompanied with foulness or enlargement of the tongue, and evinced by the state of the matter thrown up, especially if the suffering be immediately relieved after vomiting, to the presence of noxious and indigestible substances in the stomach.

(4) If attended by sudden paroxysms of cramp-like pain, and abrupt suspension of breath, to increased irritability of a purely spasmodic character.

(5) If both symptoms occur habitually in the morning, and there be no further indication of irritation of the stomach itself, and if further examination of the urine and other symptoms lead to the same conclusion, they may be attributable to gravel.

TONGUE.

ITS INDICATIONS.

Experience has taught the physician, as it will teach you careful observer, to look upon the tongue as a mirror, more or less perfect, reflecting the complexion of the nervous power, the blood, state of the secretions, and of the digestive functions. We must observe with care its movements, volume, dryness or humidity, color and coating. When furred, dirty or brownish white, without either unusual dryness, enlargement or redness, it indicates a recent and easily rectified derangement of the lining membrane, rather than the nerves of the stomach. This membrane is seriously involved when the tongue with red tip and margins is slimy and furred. Where yellow, with one or more of the last stated indications, it tells us of an affected liver. Where nerves of the stomach have recently become affected, we see a clean, bright red and moist tongue, with unnaturally large papilla; but where the affection is of longer standing and more severe, the tongue is dry and glazed. A swollen, red, whitish furred tongue, indicates a serious nervous derangement of the digestive organs, that reacts congestively upon the brain. Severe nervous derangement of the stomach is mirrored in the cracked, furrowed, fissured, and swollen tongue.

A swollen tongue, thinly coated, white, with bright red tips and margins, points to a complication of both varieties of indigestion, that of the lining membrane, and the nerves of the stomach, of long standing and obstinate in character. Irregular operation of the brain, as also extreme despondency, depression of spirit and nervous irritability may be looked for

as associated with these symptoms. The tongue when impeded and tremulous in protrusion is found in all conditions of the system attended with exhaustion, as in drunkards, etc. It is protruded slowly, tremulously and with difficulty in fevers of low type and in nervous disorders, which are accompanied by marked debility and of those implicating the spinal marrow.

The blackish, furred, dry and tremulous tongue is a severe symptom in abdominal or putrid Typhus.

LOSS AND UNHEALTHY INCREASE OF FLESH.

THEIR INDICATIONS.

Accumulations of flesh, sudden, excessive, or otherwise irregular, is usually associated with disease of the liver. It should be closely watched to detect the first manifestation of disease.

Emaciation, or loss of flesh, not the result of fever, deep grief, or continued mental excitement, may be attributable (1) to undue and irregular discharges of blood, evacuation of water, and the like; (2) to disease of the lungs; (3) or to derangements either of the stomach or bowels.

THE SALIVA.

ITS INDICATIONS.

Deficiency of saliva, or dryness of the mouth and throat, denotes an inflammatory condition,—in which case it will be a continuous symptom, associated with thirst.

Increased flow of saliva may be critical, as in small-pox, or in sluggish nervous fevers, or fevers generally, from a suppression of perspiration; or symptomatic of purely local affection; or associated with sympathetic disorders, originating in the stomach or intestines; or it may be connected with sore throat.

THE NERVES, BRAIN, SENSATIONS AND SENSES.

THEIR INDICATIONS.

This section includes the consideration of suspension, or acuteness of sensation, perception, consciousness, volition, motion and rest.

1 *Loss of consciousness, delirium, fainting and their indications.*

Loss of consciousness may be of three kinds, two of which are primarily referable to the brain, and one to the heart—apoplexy, which consists in total suspension of the activity of the brain, and consequently also of nervous irritability and vitality; delirium, which consists in total suspension of the activity of the brain, and consequently also of nervous irritability and vitality; delirium which consists in disturbance or irregularity in the activity of the brain; and fainting, which consists of temporary suspension of the activity of the heart, also involving prostration of general nervous activity.

Apoplexy.

Distinguishable by unaltered strength or increased force of pulsation, accompanying total suspension of motion or motive power, which does not always return with consciousness, indicates an organic affection of the substance of the brain, more or less critical.

Delirium.

Distinguishable by loss of connected ideas, with or without frantic movements, but always with increased or dimin-

ished activity of the brain of an irregular nature; affords various indications, according to the particular conditions and circumstances which precede, accompany or follow it, or to the particular disposition of the patient, which may serve to qualify it.

1. When it becomes continuous, without any other symptom of derangement, and the functions of the system continue in regular operation, it ceases to be a symptom, and assumes the character of an independent disease, and indicates a greater or less alteration of the substance of the brain.

2. Persons of a temperament characterized by peculiar activity and susceptibility of the brain, exhibit this symptom with so little acceleration of circulation, that we should weigh well accompanying indications before attaching much importance to delirium alone, in patients of such a disposition.

2. If there be active delirium—raving occasioned by sudden determination of blood to the brain, with or without frantic action, with considerable derangement of the system, especially in persons who are not subject to a manifestation of that kind—we should consider whether there be continuous and active fever, in which case we have an indication of inflammation; or whether there has previously been some eruption which has suddenly disappeared; or whether there are symptoms that forbode an eruption; or, whether again there have been evidences of inflammation, developed in some other organ, which suddenly subsided or disappeared. Or, if no such manifestation be present, we may consider the delirium as resulting from a sympathetic affection of the brain, of which the primary cause is seated in some other part, such as the stomach or bowels, or both; arising from the presence of irritative matters, as worms or bile, or the influence of narcotic and poisonous drugs.

4. There is another kind of delirium, a very important symptom, associated with pressure on the brain, generally the immediate or remote result of inflammation.

Inflammation.

Immediate, when it appears as a concomitant symptom of the actual disease, in which case it distinctly indicates the presence of blood disengaged, and accumulating in the substance of the brain, or suffusion of extravasated blood in the enveloping membrane. Remote when acute inflammation is not present, in which case it shows the presence of water.

This is what is termed drowsy delirium. It is identified by a deficiency of nervous and cerebral activity, the absence, in many cases, of any motion of the body, a species of dull inanimate sleep, total helplessness, and complete silence, or at the most a low murmur.

Drowsy delirium may appear in nervous and typhoid fevers, as an indication of general debility.

In any case it may be considered as a more critical manifestation than active delirium.

Fainting or swooning.

This should also be considered with due regard to the disposition of the patient, and to the circumstances which qualify it.

1. If it be habitual, especially as the termination of violent attacks of palpitation, there is reason to apprehend organic derangement of the heart.

2. If, on the other hand, it should occur casually, after violent emotion, as joy, fear or grief, after severe loss of blood, or as the result of excruciating pain, or as the consequence of accidental injury, it is not to be looked upon as important.

3. If, again, it be the habitual result of nervous excitement, in persons of a highly susceptible, hysterical or hypochondriacal disposition, it is not of great moment.

4. If one or more fainting fits should usher in an attack of fever, we have a positive indication of the subsequent nervous type of the disease.

SLEEP.

ITS INDICATIONS.

The sleep of persons of all ages should be calm, neither interrupted nor too long undisturbed, with a placid countenance, and no pain, uneasiness, fantastic dreams, or visions. The only motion which does not identify irregularity during sleep, is the occasional turn from side to side. The more noiseless the breathing, the more perfectly healthy the sleep. The skin during sleep should be warm, but neither very hot, dry, nor excessively moist.

Restlessness.

The inability to rest and muscular motion, may be considered as an unhealthy condition of activity or motion, either internal or external. As a symptom of fever, it denotes excessive susceptibility or irregularity, and irritative activity of sensation. It is an evidence rather of an inflammatory than of a debilitated state.

Contraction of the extremities towards the bowels, indicates pain in those parts, chiefly colicky pains.

Continually starting up in bed, evinces great oppression and anxiety, or simply delirium.

Continual sinking down toward the foot of the bed, shows great prostration of vital energy.

Throwing off the clothes, so that the patient lays himself bare, denotes oppression and anxiety, or delirium, associated with evident inability on the part of the patient to bear the bed-clothes upon the body as in rickets.

Grasping at imaginary objects, is one of the indications

of utter retrocession of vital energy, if not of approaching dissolution.

Position.

The position of the patient is a subject of some importance :

1 Severe suffering produced by lying on one side, constituting an inability to lie on that side, denotes internal derangement of the opposite side.

2. Retention of one position, shows excessive, weakness or stupor, according to the symptoms, and the previous duration or nature of the disease.

3. Repeated change of position, on what are termed the "critical days" as the seventh or fourteenth, in fevers which run a regular course, especially eruptive fevers, may be assumed to indicate the approach of the crisis ; or, if early in the course of a fever, not accompanied by an eruption, we may infer the necessity for such a development ; or, if unattended by general indications of a forthcoming eruption, or unconnected with a crisis, and characterized either by determination of blood, or deficiency, or suspension of natural discharges or evacuations, may indicate a lodgement of matters in the stomach, or simply internal pain or anxiety.

4. The favorable indications connected with the position, consist (1) of such a position as is least inconsistent with that usually assumed by the patient when in health, and (2) ability of the patient to lie on one side or the other, or upon the back, which determines the absence of disease of the chest, or of the intestines.

Sleep, when unhealthy, is distinguishable by circumstances contrary to those above stated, or opposed to the habitual condition of the patient when in health.

1. When it is characterized by delirium.

2. When it is impossible to rouse the patient—fever being present, it is identified as of a typhoid character, or we may infer that there is inflammation of the brain. This is especially an ill-omen when it is manifested at the commencement

of fever ; it may result from an opiate or stimulant.

3. When the sleep is disturbed by the least noise, but relapses immediately.

4. When it is interrupted by muscular twitches, convulsive movements, or when there is grinding of the teeth during sleep, all of which may be associated with hysterical excitement in females, when they are not serious evidences of disease. They may occur in consequence of sympathetic irritation of the brain, resulting from oppression or irritation of the stomach.

Spasms and convulsions.

Spasms and convulsions may be classified under the head of "motion ;" they constitute muscular motion both internal and external ; in order to discriminate their importance we must have regard to the general circumstances, ages, sex and disposition which may qualify them.

1. In highly susceptible or hysterical females, or children, they are usually provoked by trivial causes, and often unattended by constitutional disturbance ; they are not to be considered as of moment, and may be traced to some irritation of the stomach or bowels.

2. If they occur in consequence of wounds by which important tendons have been injured, spasms are highly momentous, and may result in lock-jaw, or permanent rigidity of the injured limbs, or of other parts.

3. If they occur in persons of mature years and of robust habit, from severe loss of blood, they are of portentous import, being the result of exhaustion of the vital energy.

4. If they appear as the effect of determination of blood to the brain or to the spinal marrow, or of the presence of obnoxious matters or foreign bodies, they are not to be neglected. In the first of these cases, they are caused by pressure of blood, in the second by nervous irritation.

5. If they occur at the crisis in typhus fever, they may be critical, terminating in convalescence or fatal when the vital energy sinks in this last effort.

6. If they appear associated with contagion or the irregular developement of eruptions, as purple rash, or small pox, they are attributable to nervous irritation.

7. They may arise from the presence of worms in the intestines, or other obnoxious or irritating matter in the stomach or intestines, in which case also they are occasioned by nervous irritation.

8. Convulsions resulting from the pressure of extraneous matter on the brain, or otherwise traceable to irritation of the brain, may result in epilepsy.

9. Spasms which affect the muscles of a limb are called "cramp." The distinctive feature of a spasm is an uninterrupted, severe muscular contraction.

10. Convulsions consist in the alternate contraction and relaxation of one or more muscles.

11. Spasms and convulsions internally, include vomiting already separately considered; colic, treated of under the head of "Pain," when they affect the bowels; cough separately considered hereafter, and also under the head of "Breath;" the retention of urine, considered under the head of "Urine," when they affect the bladder; hiccough when they affect the midriff or diaphragm.

Paralysis.

Paralysis may be confined to muscular power or extend to the brain, and all power of sensation and perception; it must be considered with due regard to every circumstance connected with it, to form a just idea of it.

In any case the brain must be considered as the seat, either directly or indirectly. It may be the result of external oppression, or organic affection of the brain or spinal marrow.

1. If it be occasioned by external causes, or oppression from congestion of the enveloping membrane of the brain, it will be transitory, and consequently the more remediable. In the majority of such cases the paralysis will be local, leaving the faculties and physical parts of the organism, unaffected. Very severe cases are an exception.

2. If the result of internal affection of the brain, as of accumulation of blood, it will be continuous, and almost invariably impair, if not destroy, the memory, and permanently detract from the powers of perception and sensation.

Hiccough.

Hiccough must be considered with regard to the conditions and circumstances of age, and of the symptoms with which it is associated. Simply, it is a spasm of the midriff or diaphragm.

1. In children associated with cold or flatulency, it is casual and of little moment.

2. If with nervous fever, it indicates a malignancy.

3. If with inflammatory fever, it evinces, to a certain degree, inflammation of the bowels,

Trembling.

Trembling is of various import, according to circumstances and conditions, and the disposition of the patient.

1. If the patient be highly nervous, and it cannot be traced to any other cause, it may be attributed to nervous excitement or irritation from emotion of any kind; abuse of stimulants, whether medicinally administered or not; excessive physical exertion or mental labor.

2. If the antecedent circumstances be characterized by loss of blood, or diarrhœa, it may be attributed to debility; as also if it attend any exertion after severe disease.

3. If it be distinctly manifested, unconnected with other direct causes, at the outset of a fever, it is a premonition of the nervous character of the disease.

THE SENSATIONS,

AND THEIR INDICATIONS.

The most distinct sensation, as a symptom of disease, is pain,—or absence of pain when there is disease which should cause pain; we may also divide these sensations into two subdivisions—those of discomfort or uneasiness and those of anxiety.

Pain, discomfort and anxiety.

Pain, as a symptom, in whatever part or organ, is to be divided into (1) uninterrupted, persistent in the same part, and aggravated by touch, and still more by severe pressure, and temporarily by the application of heat, is the general indication of inflammation; (2) pain in a particular course or direction, as of a nerve, or changeable as to the part in which it occurs, but aggravated by contact or slight touch, and relieved or not aggravated, by severe pressure, is of a nervous character; (3) pain which comes and goes in the same part, of a contractive or cramp like character, relieved by pressure, or warmth or friction, often intermittent, and always irregular, rarely continuous and never persistent, is spasmodic.

Pain in the chest, or painful respiration, may be the result of an overloaded stomach, or occasioned by a rheumatic, by a spasmodic, by an inflammatory affection, or by determination of blood to the enveloping membrane of the lungs, or pleura; a bruised or stiff sensation as if the muscles cannot bear the expansion of the chest, and again if the pain is shifting, or if touching and passing the chest causes pain, is rheumatic.

Casual stitches, suddenly interrupting the breathing, without returning regularly, or caused by a similar effort in breathing are neuralgic.

A persistent stitching pain whenever a certain degree of expansion takes place, with a dull heavy pain in the interval, indicates congestion of the pleura, or enveloping membrane of the lungs.

With continual acute pain growing worse and worse, with general fever, preceded by chills and associated with more or less prostration, inflammation of this membrane, clearly exists.

Pain in the bowels, colic or painful evacuations is (1) nervous, when it will be fugitive, returning when the attention is directed to it, aggravated by apparent contact or touch, and relieved by pressure, or (2) spasmodic, relieved by contact and pressure of every kind, by lying on the stomach, and by drawing the legs up, and otherwise contracting the body; or (3) inflammatory, distinguished by persistency, accurate locality, progressive aggravation, by excessive tenderness to touch and still more to pressure.

Colic, properly so called, is, strictly speaking, spasmodic pain, long continued.

Painful discharge of urine may be the symptom of inflammation or irritability of the passage, or of the bladder or neck of the bladder, or of the kidneys; or spasm of the bladder, and neck of the bladder, distinguishable by the locality of the pain and nature of the discharge; for (1) if the pain arise from inflammation of the bladder and neck of the bladder it will be associated with hard pulse and fever, and the pain be more severely felt at the bottom of the bowels, and the discharge will be mingled with blood, or blood will predominate over the urine or the discharge of urine will be followed by that of pure blood, with excruciating twinging pain; (2) if the pain be occasioned by inflammation, irritation, or irritability of the passage, it will be accompanied by a scalding sensation when urinating, with or without discharge of matter; (3) if the pain be dependent upon inflammation,

irritation, or irritability of the kidneys, the water evacuated will be hot, and the pain will be chiefly in the loin and small of the back ; or (4) if the pain be occasioned by spasm of the bladder or neck of the bladder, there will be continual urging to pass water, but total inability to effect it ; suspension of urine with cutting, cramp-like agonizing pain in the part, relieved by pressure, by doubling the body forward, and pressing the hands upon the lower part of the abdomen.

Absence or sudden suspension of pain in cases of inflammation is a most ominous manifestation ; it may indicate the sudden transition of the inflammation to another organ ; in most cases to the brain ; when it requires the utmost care, but is nevertheless, not so alarming as the change from inflammation to mortification, and consequent loss of sensation.

Intermittent pain, either periodic or severe for a certain period, often accompanied by local heat or general flushes of heat, sometimes by palpitation of the heart, and frequently by a degree of irritative fever, terminating in local or general perspiration, and acute degree of nervous susceptibility, and irritability at intervals is of a nervous character.

Remittent pain, modified from time to time for certain intervals, especially at certain periods of the day, or under particular condition of heat, cold, access or exclusion of air, or palliative measures, but which never totally subsides, but continues dull, heavy and persistent, instead of acute pulsating or shooting, and is further qualified by severe feverish symptoms during the acute stages, which, however, also become modified, though never wholly subside during the intervals of relief—is generally associated with inflammation, or obstructive causes of irritation, with a strong tendency to organic inflammation, and points out chronic or continued inflammation in such parts or organs.

Inflammatory pain, in its genuine distinctive character is plainly distinguishable.

Accompanied by increased heat of the part affected, and especially, if it continue, by general heat of body, or alternate heat and chills, frequent hard pulse and other signs of fever.

If it be internal and affect one or more organs, the adjacent parts and the whole body except the legs, will manifest greatly increased heat, the general symptoms of fever will run high, with thirst, generally considerable, often intense and insatiable.

It will be continuous, proceeding from bad to worse, until the crisis, or other issue.

It will be relieved by moisture of the skin, and general or local perspiration.

It will be greatly aggravated by the least touch as of the clothes or bedclothes, but still more so by severe pressure which is insupportable.

If local, there will be often redness or swelling of the part.

There will be somewhat more or less manifestation of the veins, which will be swollen and dark; generally they are imperceptible.

There will often be more or less throbbing or pulsation, especially if suppuration threaten; this symptom may, however, accompany nervous pain.

If local, it will be aggravated at first by more applications as fomentations, but will afterwards decrease, and will be relieved at first by cold applications, but the pain will return more severely.

Whether local, or affecting internal and important organs, it will be aggravated by stimulants, motion, exertion, mental or nervous excitement and fatigue, and will have a tendency to grow worse towards night.

If natural discharges pass over the inflamed surfaces, as for instance the bladder or bowels, the pain will become excruciating.

The pain will prevent or disturb proper rest and sleep;—a condition which applies to inflammatory pain, because pains either of a nervous or spasmodic character may be overcome by sleep, which frequently occurs in spite of them; consequently extreme and insuperable restlessness, with indications as above stated, identifies pain as inflammatory.

The most perfect resolution of inflammatory pain of any

kind, consists in gentle, undisturbed sleep, with proper moisture of the skin.

Nervous pains are of a fugitive, irregular or periodical pulsating, dragging darting character, with or without local heat during the continuance of suffering, but often attended with local sweat simultaneously—which never occurs in inflammatory pains, by flushes of heat without fever or by temporary irritative fever in a modified degree; by restlessness, depression of the spirits, hysterical disposition or fantastic ideas, aggravated by thinking of them, and relieved when the attention is distracted by objects of interest, or aggravated by apparent contact or slight touch, and relieved by pressure, unattended by any variations of appetite or thirst; characterized by the occurrence of involuntary motions, as by jerking, or the sensation of twitching, or vibrating in particular parts—in the latter case, frequently without external perception of such action, by extreme restlessness and uneasiness, with or without irritative fever, by intermittency or periodicity, by being usually dispelled by absorbing occupation, and by an intractable persistency, continuing to recur, in spite of every remedial measure without, however, for some time affecting the general health.

Spasmodic pains are cramp-like, contractive and cutting, but usually brief, though they may be frequent, are unassociated with heat, or other inflammatory symptom, and except in highly excitable subjects, are attended by depressed circulation; from long continuance they may engender reactionary inflammation, and assume the characteristics of inflammatory pain, sometimes becoming, in such cases, very serious and intractable. As affecting important organs, they may first accelerate, then temporarily suspend the circulation and breath. They are relieved by stimulants, heat, contraction of the parts or of the body, as by bending forward pressure, and especially friction. In excess they render expansion of the parts impossible. They are either local, affecting particular muscles, or internal, affecting the muscles connected with, or constituting important organs. A constant and severe

spasmodic pain, affecting the heart or stomach, is indicative of organic derangement. A casual spasmodic pain, however severe, is attributable chiefly to the presence of irritative matters, as in the stomach or bowels.

Partial pain in the head, in one spot or on one side of the head, is indicative of hysteria in the female, or of hypochondriasis in the male.

Pain at the back of the head denotes determination of blood to the head.

Pressing pain in the forehead with giddiness, implies the presence of irritative or impure substances in the stomach; or, excessive weakness if it occur after a severe attack of illness, confinement to bed, or more especially loss of blood, or other animal fluids.

Pain particularly and persistently in the back or loins, may, in females be associated with pregnancy, with hysteria, displacement, or affection of the womb or piles.

Pain in the anterior part of the stomach, occasioned by pressure, although there be no actual or positive pain without, as associated with fever and heat of the part, or retching or straining, denotes inflammation of the stomach.

Stitching or pricking pain may denote spasm, but more frequently determination of blood to a part, or inflammation, especially of an enveloping membrane as the pleura. If it be occasioned by spasm—as of the stomach—it will be casual, generally severe, sometimes even suspending the breath, but passing off without return, or with a similarly casual return in the majority of cases, upon the dislodgment of wind, especially belching; pressure and friction will relieve it.

If the result of determination of blood, as on the right or left side, about the spleen, provoked by rapid motion, immediately after eating, or the like conditions,—or without immediate cause (as in the right side) and perceptible upon drawing a deep breath without striking constitutional derangement,—pressure does not always aggravate it, unless severe, motion does; relaxation of the parts, as by bending the body forward, gives relief.

If the decisive symptom of inflammation, as in pleurisy, we may thereby distinguish inflammation of the membrane from inflammation of the substance of the lungs, especially if there be little (if any) pain until the parts are expanded, as by drawing breath deeply; and its inflammatory character will be distinguishable in the general derangement, and high degree of fever, with local and general heat, dryness of the skin and thirst.

COUGHS.

THEIR INDICATIONS.

Coughs are of various significance and point to various derangements, according to the conditions which precede, accompany or follow them, or by which they are provoked. They constitute manifestations which should never be overlooked in disease because, whether associated with direct or local inflammation of the respiratory apparatus, or with sympathetic affections of these organs, originating in other causes of irritation, in the stomach, spleen or liver, cough indicates for the time either (1) that there is irritability, and consequently susceptibility to disease; or (2) that there is some cause of irritation oppressing the organs of respiration directly, or reacting upon them from other parts.

If cough be sympathetic from irregularity in the process of digestion, chronic derangement of the lining membrane of the stomach, or impure substances in the stomach or bowels, received or engendered; it should be dealt with, as an affection of the stomach or bowels, with this reservation, that if the increased irritation of the lungs be allowed to continue too long, it may lead to congestion of the lungs themselves.

If the respiratory organs be the seat of the affection, it may result from congestion or tubercle, or be purely nervous; or it may be occasioned by inflammatory action in the lungs,

the bronchi, the windpipe, or by common catarrh, or cold.

The condition of perfect health, as respects the respiratory organs inconsistent with cough; for when no cause of irritation, either local or sympathetic, is present, there will be no cough, nor anything to impede the breath, and a deep inhalation may be made, and the air retained for some seconds in the lungs, without the slightest disposition to cough.

If the habit of body be such as to lead to the suspicion that there is some latent taint in the system, or if the taint be manifested by affections of the glands, skin, or bones, or by a tendency in every affection to assume a sluggish chronic character, or by continual, inflammatory or ulcerative affections of the eyelids or gums, cough may be of momentous importance, and should lead us to investigate its cause, and to treat the affection, of whatever character, without delay, lest it should run on to organic affection of the lungs and end in consumption.

Short dry cough, accompanied by watering of the eyes, and frequent fits of sneezing in the early stage of acute fever, usually prognosticates measles.

Cough painful and hawking, associated with feverishness, may be the symptoms of incipient inflammation of the lungs.

Predisposition to cough, as the result of every exertion, from rapid motion, speaking, or laughing, or occasioned by mental or moral excitement or the result of every derangement of the system, usually denotes a tendency to organic affection of the lungs.

Chronic, dry cough, with more or less difficulty in breathing, readily provoked by the slightest causes, and accompanied from time to time with stitching sensations, or pains in the chest, leads to the opinion that the tuberculous disease has set in

THE COMPLEXION

ITS INDICATIONS.

A red, florid complexion denotes determination of blood to the head, or a full habit of body.

White, cold, dead-white complexion of young females at the critical age denotes a difficulty in the sexual transition—green sickness or chlorosis.

Faint yellow complexion, usually denotes intestinal disease—disease of the bowels.

Deep yellow complexion, on the other hand, jaundice or organic disease of the liver.

Pallid complexion, with meagerness, want of fulness of the skin, commonly points to the stomach and intestinal canal as the seat of disorder, and may be caused by obnoxious or impure matters therein or acidity of the stomach; with a drawn sunken appearance, it denotes spasms; with puffiness constitutional weakness; qualified by sluggish circulation or congestion, or excess of the watery constituents of the blood, or by deficiency of the blood. (anemia)

Patchy redness of the complexion, redness as of a flush spot on the cheek, denotes hectic.

Sudden and total change in the complexion is to be considered as a serious manifestation.

Livid spots, may in advanced age, lead to an apprehension of apoplexy, from accumulations of blood upon important organs; the general indications however, is that of a putrescent condition of the blood, as associated with scorbutic habit of body.

Blue or livid complexion, organic affection of the heart.

Straw colored complexion leads to a suspicion of a cancerous constitution.

THE EXPECTORATION.

ITS INDICATIONS.

Expectoration indicating a wholesome crisis of disease, in inflammatory diseases of the lungs, is identified by the facility by which it is detached and expelled, by the absence of pain, and the relief which it affords ; and the exhibition of consistency and a yellowish color, occasionally modified by a few slight streaks of blood.

Expectoration expelled with effort, as repeated hawking or coughing, or with pain or soreness in the effort to detach it, may denote the presence of accumulations in the air-cells or tubes, or in the wind-pipe, the result of continued irritation.

1 If jelly-like, sticky, or rusty-colored, it indicates inflammation of the lungs.

2. If transparent, stringy, or sticky ; sometimes streaked and expectorated with difficulty, and without relief, it commonly denotes acute inflammation of the air tubes or bronchitis, in which affection a change in the expectoration to an opaque, yellow, or greenish-white, easily coughed up, and followed by considerable relief, gives evidence of subsiding inflammation.

3. If it be of the character of matter with whitish streaks, or small whitish-yellow roundish masses, connected together by, or floating amongst sticky mucus, it is usually a symptom of the second stage of consumption ; if it consist of masses of substance of brownish or greenish-white color, which flattens at the bottom of the vessel, into a shape resembling a piece of coin, it is an indication of an advanced stage of consumption.

4. If it be of blood, it may be the result of inflammation or of consumption ; but it is very frequently the off-spring of congestion, or an overcharged state of the lungs. If a permanent symptom it is of great import.

5. If yellow, and particularly if bitter, affection of the liver is indicated.

SHORT STOPS,

OR READY HELPS IN CASES OF EMERGENCIES.

Medical men, whether specialists, or in general practice, devote particular attention to informing themselves in what we shall denominate "*Short Stops.*" In other words ; what is best to do in sudden emergencies, coming, as they do, without a note of warning for preparation. An intelligent individual, with a reasonable degree of interest and care, may learn how to prevent much suffering, and perhaps, *Life*, in being able to render timely aid in a moment of emergency.

The physician or surgeon cannot at all times be obtained when most needed, and for the want of a little knowledge on the part of those present, *the life of a loved one is sacrificed.*

To prevent so great a calamity befalling you, prepare yourself that you may be able to act effectively should occasion require.

The more thorough your knowledge of anatomy, the more readily will you comprehend the situation and be able to act accordingly—the first moments being generally those most precious.

Bleeding, in some manner, is perhaps, associated with the the greater number of accidents, therefore, a knowledge of the course of the principal blood vessels is very important. A ready way to familiarize yourself with them is, first, consult your anatomy, then, upon retiring, seek out their course upon your own person, the arteries may be known by their pulsating, the veins by their blue lines.

The arterial blood is of a bright red color, and in escaping, in cases of an accident, will be recognized by its coming

in jets with each pulsation of the heart, except where the wound is deep, the jet may not be so apparent, nor may its color be so bright, care, therefore, should be observed in this respect in deep wounds. Veins carry a dark dull, red blood that flows from a wound without distinct pulsation. Should accident occur with hemorrhages a ready suspension may be secured temporarily, by applying the fingers directly from whence the blood issues, maintaining pressure against a bone if possible (see Fig. 1.) until more permanent means of control are securely applied. Pressure may also be made an inch or so above the wound, on the artery, sometimes on the artery on the side farthest from the heart. Cold also is a



Fig. 1. Finger Pressure

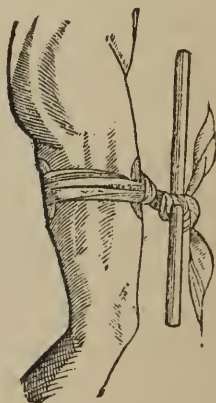


Fig. 2. Stick Tourniquet.

valuable aid, or iced water or exposure to the air in cold weather. If the wound be that of one of the large arteries in the limbs, upper or lower, a piece of cloth or a handkerchief may be made very serviceable by tying a stone, or other hard substance of a round form in a knot placing the cone over the bleeding vessel on the side next to the body, bring the other ends around the limb, tie them, passing a stick through the loop, twist it until the vessel is secure from bleeding. (See Fig. 2.)

If bleeding is persistent, if the wound is in a lower limb, the patient lying on the back, should elevate the limb at right angles with the body, or, if an arm, elevate the arm, this alone or in addition to the other means already brought

to bear. One or more of these ready measures should be resorted to and continued until the arrival of the surgeon.

Here is a good place to call your attention to one or two features of the vein. They run in two sets, the *superficial*, which are abundant in number, tortuous in their courses, frequently uniting with each other. The deep are for the most part, if anything, more direct, yet side by side with the large artery. Springing from the artery that leaves the heart, the *aorta*, the main trunk of all the arteries, are five branches. From the ascending portion arises the *right* and *left coronary* arteries; from the transverse portion the *arteria innominata*, *left carotid* and *left subclavian*: The *left* and longer carotid passes up the left, and the *right carotid* arising from the innominata, up the right side of the neck carrying the blood to the neck and head; they run in a line from the inner end of the collar bone to the angle of the lower jaw, easily traceable by the finger. The superficial *jugular vein* can be seen under the skin, while the deep jugular vein lies very nearly parallel to the artery. (See Fig. 3.)

To arrest bleeding in a wound of this artery, or one of its branches, pressure should be employed in a direction rather inwards and backwards, so as to press the vessel against the side-projections of the vertebral column.

The great artery (subclavian) which supplies the upper extremity with blood, comes up out of the chest, and passes directly over the first rib in a direction outwards and downwards, toward the armpit. By pressing the thumb firmly into the neck, just be-



Fig. 3.

hind the middle of the collar-bone, the pulsation may be detected ; and in case of hemorrhage from, in, or near the armpit, pressure should be kept up here for some time, either with a blunt piece of wood with a rounded end, or with the handle of a common door-key wrapped in three or four folds of linen. The pressure will diminish or entirely prevent the blood current by the mechanical flattening of the vessel against the first rib. In the armpit it is not difficult to feel the artery (axillary) beating, by pressing the thumb or finger deeply towards the apex of the hollow, and pressure may be made by fixing the vessel between the fingers and the arm-bone at its upper part.

From this point the artery (brachial) runs onwards to the elbow keeping always to the inside of the arm, and on the inner side of the prominent muscle of the upper arm by parallel veins ; throughout its course the artery is easily controlled by properly applied pressure, and, indeed, it is well for the reader to remember, that in wounds of the fore-arm or hand, accompanied by excessive arterial bleeding, the loss of blood may most satisfactorily be arrested by compressing this artery about the middle or lower third of its course.

The large artery of the lower limb (femoral) passes downwards from the groin lying about the middle of the crease of the groin, running almost at right angle to it. From this point of entrance, where its pulsation is very evident, and compression of it may be very easily managed, the vessel runs onwards, inclining to the inside, and ultimately turning half round the thigh-bone, so as to be felt quite behind it in the ham. In the upper three inches of its course the vessel can be felt quite behind it in the ham. In the upper three inches of its course the vessel can be felt with little difficulty ; and if it should be wounded, compression at the point of injury, or at the line of entrance in the groin will be effectual ; the thumb is better in this instance than the handle of a door key.

If severe bleeding result on wound of the leg or foot, compression of the main vessel high up will be the most satisfactory plan.

As in the arm, so here, the main artery gives off two principal branches (anterior and posterior tibial) below the knee-joint; both are deeply seated, and their pulsation, except near the ankle-joint, is not easily detected; one runs in front, the other behind the limb.

The blood is supplied by smaller branches from these two arteries.

The superficial veins are much larger than in the arm, and from wounds of them much bleeding may follow. The largest lies throughout on the inside of the limb, and is visible, if at all enlarged, throughout the whole length of its course.

WOUNDS.

THEIR VARIETIES AND TREATMENT.

These may be classified under six heads, usually classified under four.

Incised, Lacerated, Contused, Punctured, poisoned, and Gunshot wounds and so treated.

Incised wounds or cuts.

Incised wounds or cuts are those made with clean cutting instruments. In these, our first duty is to cleanse from dirt or other foreign substances, check bleeding and bring the edges in direct apposition to each other, binding them thus nicely fitted together with narrow strips of adhesive, court, or isinglass plaster. If the wound is on the head, carefully shave the hair from either side of the wound, and apply your plasters. Where plasters can not be obtained, two pads may be so placed, one on either side of the wound, that the lips of the wound may be gently pressed together, these pads or compresses being held securely in place by bandages made of narrow strips of muslin, or by strips of linen wet in cold water and bound around the wound will frequently

prove sufficient. In many instances the bringing of the two edges of the wounds together, and there holding, by the strips of plaster placed at right angles to the wound, or the compresses and bandage will be all that is necessary to check the bleeding and indeed will be all the dressing necessary.

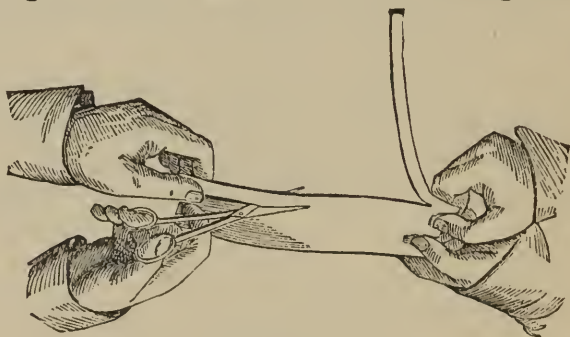


Fig. 4.

(Fig. 4.) will give you the method of cutting plasters into strips. In applying plasters, first cut in strips, less in width than length of wound; warm or dampen the the plaster, as its kind indicates; apply one end of the plaster to the sound skin, at some distance from the wound, holding the lips of the wound gently but firmly together, bring the strips of plaster directly across the cut to sound skin on the opposite side; then continue your strips of plaster in parallel lines until all necessary are applied. Sometimes it may be found necessary to place two or more horizontal strips, on ends of strips of plaster, as binders; over these place a bandage neatly adjusted. The bandage should be rolled as seen in (Fig. 5.)



Fig. 5.

and applied as seen in (Fig. 6.) When necessary to remove the strips of plaster, loosen the ends and remove as shown by (Fig. 7.) thus preventing the edges of wounds being torn asunder. Your efforts in properly dressing and further care of wounds, will be



Fig. 6.

Figs. 5 and 6 show the proper method of rolling and applying bandages.

arm extend the arm for the same reason. Rest, food easily digested, and keeping in order the functions of the body will aid greatly to bring about a perfect recovery, and here I would suggest, that where a portion of an ear, nose, finger

greatly aided by giving attention to position, particularly in wound of hand or arm. For a wound on front sides of arm, bend the elbow, thus relaxing the muscles; if on the back of

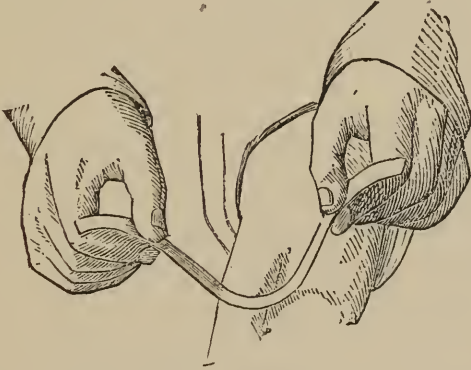


Fig. 7. Method of removing plaster.

or toe, have been partially or even entirely severed, immediately readjust and with care you may look forward to a fair possibility of the parts re-uniting, not infrequently as will other incised wounds, by what is known among surgeons as, "first intention" that is, uniting with little, if any, pain, and without the discharges of serum or matter. Remove plaster from these as from other wounds, and in redressing apply plaster, etc., as in first dressing. I would impress this indelibly upon your mind, that, the operator who performs his or her services, in surgery, doing it thoroughly and well, inflicting the least pain or discomfort to the patient, will, with hardly any exception have the most prompt and excellent recoveries. From observation on the battlefield, in the hospitals, (as a medical cadet,) during the "late unpleasantness,"

and since, I have found, not only from observation in the case of others, but in personal experience in treatment of a number of grave wounds, received on my own body, while in active service at the front, that, and that too beyond the shadow of a doubt, the uniting of tender care with skill insures a hundred-fold return to the operator. If incised wounds at any time in course of treatment present a painful feeling of distension or throbbing, are pale and flabby, or red and inflamed about lips, remove dressing, cleanse well with warm water and castile soap, and either re-apply plaster dressing, or use water dressing, keeping lips closed. Personally, I am partial to water dressings, warm or cold.

The *New York Medical Journal* reports the following in favor of water dressing. Many others, as important cases, recent or remote, as to time, might be cited in proof of water as the simplest, readiest, and perhaps safest dressing known. The journal reports: "The patient was engaged in a machine shop, and while his hand was upon the anvil of a trip-hammer, weighing several hundred pounds, fell. It so happened that a file was upon the anvil, and in this way, the force of the hammer was arrested about half an inch before it reached its bed. When the hand was examined, it was found that the whole palm was a mass of pulp, The metacarpal was comminuted extensively, and there was apparently but small chance of saving the hand. It was, however placed in hot water and kept there for two or three weeks, and then taken out and dressed." In three months the patient was able to leave the hospital, and now, nine months after the accident, he is able to move the fingers, and has quite a useful hand."

Bruises and injuries do much better when treated with hot than with cold water. The temperature should be about 103 degrees Fahrenheit.

Another case is reported of compound fracture and dislocation of the ankle joint, in which the proximal end of the first metatarsal bone protruded from the foot. The dislocation was reduced and the foot placed in hot water. At the end of a week it was taken out and dressed in the ordinary

manner. The foot is now doing well, and promises a good result."

Should there be an excessive growth of flesh in the wound, its growth may be kept within bounds by rubbing with blue-stone (sulphate of copper,) touching with solution of nitrate of silver, or carbolic acid, or by binding a piece of dry lint for a few days upon the part. In incised or other wounds about the head ever bear in mind the surgical axiom; there is no injury to the head, however slight, but that serious consequences may attend it; no injury, however severe, but there may be a possibility of recovery. Indeed, injuries of the head are among the most important subjects that can engage the surgeon's attention. Wounds which require stitches to be taken or arteries to be tied, should, with rare exceptions, be relegated to a surgeon's care.

Lacerated wounds.

Lacerated wounds are those in which the flesh is mangled or torn, presenting in variety those produced by blunt cutting instruments, machinery, bites and gorings by animals, gun or cannon shot injuries, etc. This class of wounds are not apt to bleed so freely as incised wounds. In their treatment, first cleanse of foreign substances; the hemorrhages are not generally difficult to control. Cold or warm water dressings are very effectual in the treatment of these wounds. In my practice I use it freely; varying it, as in my judgment, occasion require. A solution of tinc. of arnica of various strengths, whiskey and water, one part of former to two of latter, or half and half, tincts. of aloes and-opium; frequently cleanse with a 10 to 20 per cent. solution of nitrate of silver (argentum nitrate) or carbolic acid. If the wound is not severe, ordinarily a piece of lint soaked in any of the above dressings or laid upon the wound, letting it absorb the blood and binding it there, will be all that will be requisite. In all cases of wounds, of a severe character, it is expected that the patient or friends of the patient, will avail themselves of the services of a skilled surgeon at their earliest opportunity.

Contused wounds.

Contused wounds may be caused by violent blows, falls, kicks, etc., crushing the edges, so that uniting by co-aptition, with contusions we may include bruises owing to their similarity. In appearance they are usually swollen, red and inflamed at first, later dark purple. If the swelling is great usually the pain is correspondingly great; but not always. Water dressings, hot fomentations renewed frequently by applying flannels wrung out of hot water, or hot hop water. Some obtain the greatest relief in the application of cold water. Lotions of arnica, tinc. of opium and whiskey, whiskey and water, etc., will answer in cases that do not require the surgeon.

Punctured wounds.

Punctured wounds, are those made by a pointed instrument, and are distinguished for their depth rather than their breadth. Made as they are by narrow, sharp pointed instruments, from a needle to a sword, they vary greatly in extent, and not infrequently are to a degree contused, and in these cases partake of the general character of wounds of that class, with a tendency to unite by granulation from the bottom of the wound having considerable inflammatory action, when deep they frequently include injuries to internal organs or deep lying vessels, and are therefore very dangerous in character. In their treatment, cleanse thoroughly, with forceps, or by other means, removing all extraneous substances, check bleeding, bring edges together, when approximated, hold there by strips of plaster, wetted strips of linen, compresses and bandages as in incised wounds. These wounds should not be encouraged to heal by first intention, lest serious consequences ensue; but should be kept thoroughly cleansed with clean water and castile soap with now and then some disinfecting wash as in the other wounds. It is from punctured wounds that so frequently arise cases of lock-jaw (Tetanus), which will be treated of hereafter. The patient should be kept at rest, the bowels kept open with a mild

saline, cleanliness and diet carefully attended to. If at any time symptoms of blood poisoning are apparant, do not trust to your own knowledge but at once call skilled help.

Poisoned wounds.

Poisoned wounds are of that variety in which a poison is introduced either by means of a poisoned instrument, bite of a rabid animal, a poisonous insect or snake-bite, or in dissection, wounds made by poisoned instruments are particularly dangerous, especially so when coming from a body after death from pyæmia, erysipelas, inflammation of the veins, (*phlebitis*), diffuse forms of (*peritonitis*) inflammation of the the serous membrane lining the abdomen and enveloping its organs, following child birth, (parturition,) or following the operation of hernia.

These wounds are so serious in character as to necessitate, with rare exceptions, the presence of the surgeon. In the interval of his coming, if not handy, try and prevent the spread of the poison, by sucking the poison from the wound, but before you attempt to thus extract the poison from the wound of another, assure yourself that you have no open decayed teeth, nor sores or ebrasion of any kind in your own mouth; channels whereby the poison may gain entrance into and thoroughly permeate your own system before you are aware of it. The wound may also be scarified and after sucking or scarifying, bandages may be tightly applied above the wound. Nitrate of silver may be used. For snake bites wash the parts with alcohol. In numerous instances it is claimed that freely imbibing whiskey has killed the poison in the system, as also is it said of sweet oil taken internally in quantities proportionate to the severity of the action of the poison.

For insect stings apply aqua ammonia, fresh earth, vinegar, spirits of turpentine, common yard plaintain, raw onions. My pet remedy for insect stings is one ever present in time of need. Take, immediately upon receiving the sting, wax from the ear and apply freely over the sting, first extracting the stinger if it remained in the wound.

Bites by rabid animals will be considered under the head of Hydrophobia.

Gun shot wounds.

Gun shot wounds in surgery are considered as of the contused and lacerated types, but are conceded so important as to receive much consideration at the hands of the surgical writer. I will not take time or space to consider them at length, as to the nature and force of the projectile, splinters of shell, direction, apertures of entrance and exit, etc., as would be necessary were treating on military surgery. Hemorrhage in these wounds is variable according to the size of vessels* injured, as also to the situation of the wound. Here, as in former cases, check the bleeding if severe, or if not severe, first cleanse the wound of bits of clothing, wadding or other material or substances, that, to remain would prevent healing. Water dressing was largely used during the war with marked success. If preferred, plaster dressings, lotions of such remedies as were recommended under heads of lacerated and contused wounds may be used, providing the wound is not so severe as to demand the surgeons frequent attention, in that case, loyally obey orders. Shock is one of the frequent, immediate, succeeding consequences attendant upon gun shot wounds. My rule is, when coming into the presence of the patient carry in as much good cheer as possible, diverting the mind from the injury as much as possible, in not a few instances have I witnessed by this means the subversion of the shock; where this cannot be done, free doses of Tinc. of Capsicum, or Tinc. of Opium (laudanum) ten to thirty drops in a cup of hot toddy will be found very serviceable. The patient should lie with the head on a level with the shoulders; neither noise or bustle should be permitted in the hearing of the patient. In after attentions care should be taken not in any manner to injure the wound by careless removal of plasters, compresses, stitches or in change of position.

Before closing our present subject, it may be to your ad-

vantage if we summarize the various treatment for wounds subsequent to primary dressing. Heat and cold are two factors eminently serviceable in the treatments of wounds of whatever character. Increasing heat is symptomatic of inflammation; in water dressing the corrective may be found in either warm or cold water, whichever will be most agreeable to the patient. Just here would interject this *dictum*; at all times, and under all circumstances, see that your patient enjoys in body and in mind, as far as may be possible, that most potent aid to recovery in surgical, as well as in all cases—*rest*, without it, in just the degree it is wanting in that degree are the chances lessened for the recovery of the patient, the anxieties of friends and the labors of the nurse increased.

Cold.

Cold may be used as cold water dressing, either by cloths frequently wetted with cold water, or by what is known as *irrigation*; a very excellent method in severe cases; as a means of protection to bedding, etc., place a piece of waterproof material under the wounded part of sufficient size and so arranged as to carry the water into some receptacle placed for that purpose; above the wounded part suspend the vessel containing warm or cold water, through small holes in the bottom of the vessel; or over its sides pass cords by means of which the water will slowly trickle upon the wound, over which a piece of lint or linen has been first carefully placed. The water may be made as cold as desirable by lumps of ice in the vessel.

Ice in bladder or rubber bags.

Ice in bladder or in rubber bags, is an excellent remedy at times. In using this the patient's feelings should be consulted. The ice should not be applied where there is a feeling of chilliness, or if already applied and these feelings of discomfort supervene, whether they be temporary, recurring or lasting, the ice should be removed. If this chilly, shivering feeling of discomfort does not arise, but there be

pain about the part increasing with each fresh application, discontinue its use, while a change in color to marked paleness, after having been dark red or a blue appearance, the cold should be lessened and the temperature permitted to heighten gradually.

Fomentations to which I have already referred, are applied usually by wringing soft woollen clothes, of required dimensions, that had been previously soaked in water as hot as could be borne by the patient, having, as before, placed a sufficiently large piece of water proof to protect the bedding and surroundings of the patient. Repeat the application of the woollen cloth as often as may be necessary. Where medical assistance is not obtained, and the dressing of the wound depends on friends, great care should be taken by them, that any union of the parts that may have been obtained by the already use of plasters, position, compresses or bandages, one or more of these means, however slight, when compared with size and character of wound, should never be in the slightest manner disturbed. This will frequently require particular care, gentleness and patience at the hands of the nurse, dampening with water each article of dressing removed; removing as directed in Fig. 7.

DISLOCATIONS.

Before treating this, and the subject following—*Fractures*—, I would suggest that the treatment of those forms of injury, where, of a serious character should never be attempted by the inexperienced laity, those not of the medical or surgical profession, no more should their treatment be left to the unskilled physician, but to those, only, who are skilled in surgery.

The forcible separation of the bones at their point of articulation is known as dislocation; in other words, the ex-

tremities of the bones being thrown out of joint, whereby their natural motion is partially or wholly obstructed.

Accidents of this character frequently happen at quite considerable distance from the nearest surgical aid, or the surgeon, though near, may be unavoidably detained. For the purpose of affording at least temporary relief to the unfortunate individual needing assistance, you will, by examining and re-examining, for the purpose of comparison, as frequently as you deem necessary, the corresponding joint, (or part, if it be a fracture or other injury) on the opposite limb, be able to determine the character of the injury. It may be determined from fracture by carefully pressing the fingers against each bone, that enters into the joint, from one end to the other, the muscles yielding readily to pressure. If this examination be conducted carefully in almost all cases the extremities of the bones can be felt in an unnatural position. In the order named: *shoulder, wrist, hip and ankle*, will be found the most frequent points of dislocation. There are other forms of dislocation of which we will speak. Recent dislocation may usually be reduced with more or less ease, by extending the limb, and using the requisite degree of force to overcome the resistance of the muscles surrounding the parts. If fracture accompanies dislocation, I make it a rule where possible, to first reduce the dislocation before adjusting the fracture. I know this rule is advised against, nevertheless, I have witnessed a number of cases treated successfully in this way. Usually the limb is placed in splints, then immediate reduction performed. In performing the reduction the surgeon is apt to avail himself of the limb as a lever, thereby disarranging his dressing, possibly compelling him to do his first work over. If reduction is not immediately performed, a delay of some weeks must elapse until the broken bone is sufficiently knit; thus militating greatly against the reduction of the dislocation, and possibly, in the increased difficulty attendant upon the reduction, a second fracture at the weak spot may again occur. If the injury be serious, the joint much swollen and inflamed, or there is likely to be swell-

ing, in the absence of a skilled person to reduce the dislocation, make frequent applications of woollen cloths, wring out of water, as hot as can be borne in order to keep down the swelling, reduce the pain and keep the parts in as relaxed a condition as possible, thereby favoring an easy replacement of the bone. Where reduction has been long delayed, extending into weeks, a favorable result cannot so hopefully be expected. The greater the delay the more serious and hopeless the prospect of reduction, the final result a maimed part for life. Reduction having been accomplished, a solution of Arnica may be applied, or linen cloths wet with vinegar, camphorated spirits or water alone may be applied, and the injured member placed so the muscles will be relaxed quiet, and perfect rest insured. Of treatment of individual members I will speak specifically, as I take up the injury to that member.

Dislocation of the shoulder.

Dislocation of the shoulder, or head of the bone of the upper arm, (the humerus,) we find the bone out of place here as often, I believe, I would be correct in saying, as all the other dislocations counted together, at least many times more frequent than dislocations elsewhere. This is attributable to the fact that this is the most mobile joint of the body, and the peculiar form and shallowness of its (the glenoid,) cavity. Three forms are recognized; *downward*, the head of the bone into the arm pit. By comparison the injured arm will be found to be the longest, the elbow will be carried from the side, a sulcus or hole will be found on the shoulder, and the hand of that arm cannot be laid upon the opposite shoulder; when *forward*, there is a much more marked depression, the head lies in the hollow under the *clavical*, or shoulder bone, the elbow standing off in a backward direction, and the arm shortened; when *backward*, rarely seen, the arm, as before is shortened, the fore arm turned inward, and a lump may be observed at the shoulder blade. The reduction of these various forms may be

accompanied by extension or manipulations. In ordinary cases by causing the patient to lie on the back, raise the arm, place the heel well up in the axilla,—arm-pit—, grasp the wrist and arm, pull steadily down-ward, carrying the arm toward the body, the heel acting as a fulcrum against the head of the bone, causing it to be pressed into its place with a snap easily heard. In manipulation, the arm, being flexed at the elbow, carry it outwards to a level with the shoulder, rotate outwards and bring quickly downwards and inwards to the side of the body. Reduction accomplished, the fore-arm should be supported with a sling, lying in an easy position across, in front of the body. Place a pad in the axilla, then with a moderate degree of pressure bind the arm securely to the side, in which position it should remain from two to four weeks.

Dislocations of the elbow.

Dislocations of the elbow are of several forms, the most common is that of both bones of the forearm (ulna and radius) backward upon the humerus. This dislocation may be readily recognized by the half bent position of the forearm, by the projection of the elbow behind and the lump in the hollow in front of the elbow. The forearm is generally slightly twisted, and maintains its position. Be careful and do not confound this dislocation with that more serious accident, the fracture of the humerus just above those rounded and prominent projections on each side, at its juncture with the lower arm, (the condyles), which it so greatly resembles in general appearance, but from which, you may know it by the ease with which you can move the arm in this case of fracture.

Reduction is made by extension, by traction on the arm and counter extension, (pulling in an opposite direction), your knee serving as a point of resistance, bending the forearm while producing extension. Here moments are precious, delay greatly decreases the chances for success.

The dislocation of both bones forward is of rare occur-

rence, then most frequently in children under fifteen years of age. Reduce this form by bending the forearm upon the arm, performing extension by the wrist and hand, and counter extension by the lower third of the forearm.

Dislocation side ways, (lateral), is rare ; it may be either internal or external. I am quite confident I had at least one case where the head of the radius was displaced to the inside, and the upper end of the ulna to the outside of the lower end of the humerus. The case was complicated with a dislocation at shoulder, severe lacerations of both upper and lower arm, and injuries to wrist and hand. Immediately after reduction of any form of luxation (dislocation) at the elbow, the arm should be bent forward on the body and suspended in a sling, and passive motion, after a short rest, should be performed occasionally to prevent the joint becoming stiff.

Dislocations at the wrist are rarely met ; but may occur either forward or backward (See Fig. 8.)



Fig. 8. Dislocated wrist.

Reduction in either case by extension and guiding bones to place with your fingers. Rest, and arnica to quiet pain, etc.

In luxation of the thumb backward, simple as it may appear, this form has, owing to its difficult reduction, received more attention from surgeons than it would appear to a casual observer, to deserve ; the hand being held firmly by an assistant, bend back the thumb to a right angle with the bone on which it is displaced, now press firmly forwards and downwards upon the base of the displaced bone. Pulling, in these cases, accomplishes nothing ; on the other hand, in dislocations of the fingers, is the means to be used.

Dislocations of the neck.

If there is a dislocation of the two upper cervical vertebra (bones of the neck), known as the *atlas* bone on which the head rests, and the *vertebra dentata* or *axis*; surgical aid however skillful, has thus far availed nothing, death ensuing. If in the five lower cervical vertebra, though their dislocation is usually associated with fracture, if complete, reduction must be effected speedily or death will occur from pressure upon the spinal nerves. With partial dislocation, the chin appears fixed upon the breast, speech and swallowing are prevented, face generally turned to one side; countenance bloated apparently, neck swollen, usually there is insensibil-



Fig. 9.

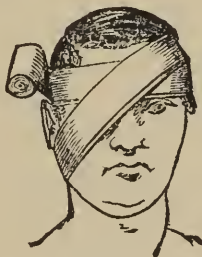


Fig. 10.

ity. Place patient on back, get immediately behind him, hold head in both hands, with knee against each shoulder, make traction, gradually increasing force, moving head carefully from side to side until reduction occurs, which can not well be mistaken, from the snap which occurs as it slips into its place; then bandage as seen in (Figs. 9 and 10.) Patient should then carefully be placed in bed, arnica, camphorated spirits, etc., may be applied, a saline purgative administered and quiet enjoined, and the utmost care exercised that the various functions of the body be kept in healthy condition until recovery is assured.

Dislocation of the hip.

Fig. 11.

Dislocation of the hip, or head of the thigh bone (Femur) is more common with adults than children; men more than women. Four principal varieties, in as many directions, are recognized; upward and backward, downward and backward, upward and forward, and backward and forward. See Fig. 11, 12 and 13.

In the *upward and backward* the leg is shortened about two inches and the knee and foot are turned inward. To reduce, place the patient on his back, on a low, firm table, or what is better upon a quilt folded and laid on the ground. Let the operator stand or kneel on the injured side, and seize the ankle with one hand and the knee with the other. Then bend the knee on the thigh; next, strongly *adduct* (bring forward to the body), carrying it over the sound one, and at the same time upward over the pelvis by a kind of semi-circular sweep as high as the navel. Then *ab-*



Fig. 12.

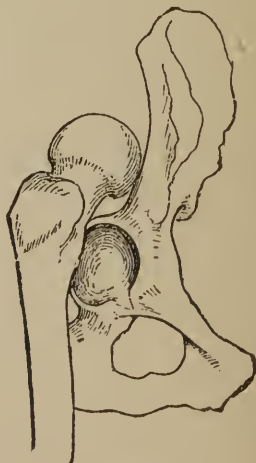


Fig. 13.

Figures 11, 12, 13 show the different dislocations to which the hip is subject.

duct (take away from the body) the knee gently, turn the toes outward, the heel inward, and the foot across the opposite and sound limb, making *gentle oscillations of the thigh*, when the head of the bone will slip into its socket, with a slight jerk, or an audible snap, and the whole limb will slide easily down into its natural position beside the other.

In the *backward and downward*, the great toe points to the ball of its fellow on the opposite foot, the heel is drawn up, the limb slightly shortened, the knee and foot turning inward. In the reduction of this dislocation, the thigh must be bent on the body and carried across the opposite one, when it should be slowly carried out away from the body in a manner very similar to that above described.

If it be *upward and forward* the limb will be shortened about an inch, while the foot and the knee will be turned outward if the dislocation is upward and forward, the limb should be strongly carried out away from the body the foot rolled outward still more strongly, till the head of the bone slips downward and the dislocation is then the same as the dislocation downward and forward. The thigh should then be strongly bent on the body and carried across the other one, when, by rolling the leg out so that the sole of the foot looks outward and upward, the head of the bone will slip into place.

That of the *downward and forward* may be recognized in the knees being widely separate, the turning outward of the knee and foot and the body being thrown well forward upon an attempt being made to stand. The manner of its reduction I gave in that of the form immediately preceding this.

Dislocation of the knee.

The dislocation of the knee is a matter of grave occurrence, and may take place forwards, backwards, inward or outward; commonly the luxation is only partial. Reduction is by extension and counter extension. The after treatment requires vigilant care to prevent the knee from becoming stiff.

The dislocation of the patella.

The dislocation of the patella, or knee pan, may be forward, backward, or sideways, (inward or outward), the last, the most common is recognized by a depression in front of the knee, inability to walk from stiff knee and by a lump on the outside of the knee-joint. Reduce by placing heel of patient on your shoulder, in so doing you relax the great extensor muscle of the limb, enabling you, with your hand, to push the patella into its place. The form, and reduction of the *inward* is the same, except, that the patella forms a protuberance on the inside of the knee-joint. This form is not often found.

Dislocation of the ankle.

A dislocation of the ankle is of infrequent occurrence, and commonly, on occurrence, is associated with fracture of one or both bones of the leg. The injury is ordinarily quite, complicated, and the results of a mismanaged case so undesirable and lasting, that I forbear further reference to the misfortune, save to advise that the attention of a surgeon be early procured and his directions strictly obeyed.

FRACTURES.

"A fracture" in surgical parlance "is a solution of continuity of the osseous tissue," in other words a fractured bone is a broken bone. A fracture may be oblique, (the most common form,) transverse, or longitudinal. A number of forms may present; three only will be considered and these very briefly, since the cases are very few that will not fully justify the presence of the surgeon. *Incomplete* when only a portion of the fibres of the bone are divided; *simple*, where the bone is simply broken across, split or fissured, unaccompanied by any lacerations of the soft parts; *compound*,

when the flesh is so lacerated that the ends of the bone may be reached through the wound on the external surface of the body.

In incomplete fracture the symptoms are frequently obscure, as likewise they often are in the other forms. A bandage, rest and quiet are about all we will find necessary in the majority of these cases. In the forms of complete fractures we may expect *crepitation*—a peculiar grating noise produced by the two ends of a broken bone moving in contact with one another, unnatural motion, (preternatural mobility,) is almost invariably an accompaniment of complete fracture.

Fractures of the bone of nose, (nasal) are received generally by falls or blows. The fragments may be replaced by passing a hard smooth article, such as a metal or bone pen handle up the nose, then with the fingers mould the fragments into shape, a piece of adhesive plaster laid across the nose will usually retain the parts in proper shape. Four or five weeks care will perhaps be required, attention being given to prevent cerebral complications or the supervention of caries of the bone.

Fracture of the upper and lower jaw bone.

Fracture of the upper and lower jaw bone (superior and inferior maxillary), rarely occur except by direct and decided violence, consequently, there is usually an amount of laceration of the soft parts, and crushed bones, also, to deal with. As a rule but little dressing is needed. The mouth should be kept shut, the parts supported by bandages and the patient fed on liquid food. If the injury is sufficiently great as to need wiring the fragments together, the aid of the surgeon will become absolutely necessary.

Fracture of the collar bone.

Fig. 14.

Fracture of the collar bone (clavical), is usually occasioned by indirect violence,—a fall upon the hand, arm or shoulder, the crooked, drooping appearance of which, will be readily observed. The arm can not rotate, nor can the hand ordinarily be carried to the face, there is pain and crepitus on motion; the injury should receive immediate attention. A pad should be placed in the axilla, and a figure of eight bandage, as seen in Fig. 14, made to support the parts; then make a sling by carrying one end under elbow of injured side, up the back, and over opposite shoulder, from near the wrist, carry the other end of the sling, tie the two ends so that the sling will carry the forearm easily and support the weight of arm on injured side. Secure arm of affected side to the body and enjoin rest and quiet for a few weeks.

Fracture of the shoulder blade.

Fracture of the shoulder blade (scapula) is of rarest occurrence, yet four separate fractures may and do occur, the



Fig. 15.



Fig. 16.

Fig. 15. Bandage of the shoulder. Fig. 16. Manner of wearing a sling, to support the arm.

indications are, want of power to move the arm, swelling and pain of injured side. It is generally agreed among surgeons that there is extreme difficulty in securing union without considerable deformity. Fracture of the body of the bone is the form usually met with, in this you treat by compress over fracture, secured by adhesive plaster, or bandage, (see Fig. 15). It is better also to support the arm in a sling.

Fracture of the upper arm.

Fracture of the upper arm (humerus, or arm bone) occurs most frequently in children at the extreme upper end (at the anatomical neck), that occurring just below, the anatomical, at the surgical neck, while not common, in the major number of cases, results from a fall upon hand or elbow more than from other forms of violence. Don't undertake the management of these cases, leave that to the surgeon. Where the fracture is in the shaft of the humerus, the treatment is simple. Apply two or three well padded splints, having flexed the elbow. The inner splint should be rectangular, being secured by a roller bandage. The forearm placed at rest in a sling in front of the body (see Fig 16.) In applying roller bandage to either limb, commence at end toward fingers or toes, bandaging evenly and carefully upward (see Fig. 17.) At the lower end of the bone there may be the fracture referred to in dislocation of elbow, and is not unfrequently met with in children. Treat with a rectangular splint for arm and fore arm, and support in sling as above. Be careful that you do not have a stiff elbow joint. If there is much swelling, and usually there is, it will be advisable to make application of cold lotions, or if much inflammation, irrigation may be resorted to.

Fracture of the hands and fingers.

Fracture of the hands and fingers (carpus, metacarpus, and phelanges.) When we have a fracture of the carpus of the hand, or properly speaking, of the wrist, we have always injuries to the soft parts also. The other bones are liable to

simple fracture, they may both be treated by arranging fragments in position and there retaining by light splints, pad and bandage.

Fracture of the thigh-bone.

Fracture of the thigh-bone (femur) may occur at the upper, middle and lower "third" and at each, in a variety of forms peculiar to the locality. I will speak only of the shaft or middle, of the bone. The signs of which are well defined in fracture occurring to an adult. Marked, by shortening, generally to a very noticeable extent, eversion of the limb, crepitus, swelling of the parts; the lower fragment lapping the upper one, generally rotating outwards. In the treatment of reduction there are no less than six different methods, each possessing advantages peculiar to itself. In the primary care for these cases, three indications should be carefully fulfilled: (1) coaptation and fixation of the fragments; (2) moderate extension, and (3) gentle compression and support of the limb. Where these requirements are strictly carried out, it matters little as to the form of apparatus employed, that which under presenting circumstances, creates the least disturbance of the fractured bone and greatest comfort to the patient is the one preferable. "Liston's splint" I think would be the one most applicable to the majority of cases. It not only prevents motion of both limb and trunk, but also acts efficiently in extending the limb. It is applied ordinarily as follows: "The patient lying on his back on a firm flat mattress, a few turns of a roller should be first carried around the foot and ankle; then the splint, well padded on its inner side, and reaching from a point opposite the nipple to four or five inches beyond the foot, must be laid on the outside of the fractured limb, and firmly secured to the latter by several more turns of the same roller around the foot and ankle and splint, and through the notches at its lower extremity; it may then be carried upwards as high as the knee. At this stage of the proceedings, traction should be steadily made on the limb by assistants, till its length equals, or slightly

exceeds its fellow, as ascertained by measuring with a tape from the anterior superior spinous process of the ilium, to lower border of the patella. When this has been effected pass a handkerchief or shawl over buttock and groin, have its two ends passed through the holes in the upper part of the splint, and tied on its outside. By this means the splint is prevented from ascending, and by tightening the perineal bandage, it can even be forced down forwards, and powerful traction thus exerted on the limb. Lastly, the remainder of the limb should be encircled by the roller, and the upper

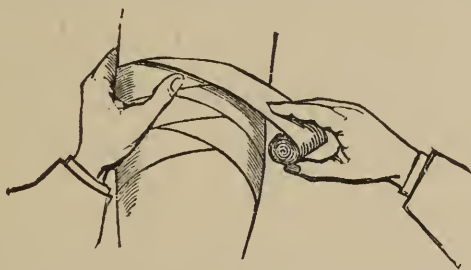


Fig. 17. Showing manner of reversing a bandage.

part of the splint bound to the trunk by a few turns of a broad rib bandage." The objection to the above dressing is, that it requires much handling and is liable to come loose, however skillfully applied; some surgeons prefer to use the roller bandage, or a sheet, or table cloth, or yet, towels, or broad bands with buckles. Care should be exercised in the adjustment of cushion at ankle or groin, and subsequent attention given them. About two months, more or less, owing to age and health of patient, will be required for the bone to unite, and three or more months before the patient should permit his weight to rest upon the injured member.

Fracture of the leg.

The two bones, (the inner and largest, the tibia, and the outer and more slender fibula,) may be broken singly or jointly. If the fibula, singly, it is a matter in which little treatment is necessary. If, as is not infrequently the case, the bone is broken at its lower fifth there is a partial luxation, or a sprain, this will necessitate attention. Where both bones

are broken there is a perceivable shortening, especially so if the fracture is at the lower fourth—a not uncommon occurrence. The points of fracture are hardly ever opposite one another, the fibula generally being fractured higher up than is the tibia. The upper fragment of the tibia projects forward, and if sharp pointed, from oblique fracture, gives a troublesome case for treatment, one which the surgeon should be careful not to promise to cure without deformity. The simple method of treatment is that of two side splints, well padded, applied, one to either side of the limb, there retained by webbed straps or roller bandage. Surgeons, of late, frequently suspend the limb in cases of this kind, by so doing, opportunity is afforded the patient to move the body largely at will, into positions of rest and comfort.

Fracture of the foot.

A rare occurrence, but one commonly attended with laceration of the parts, as also complication with tibia and fibula. If the accident is to the bone of the heel (calcaneum), you will place a well padded splint, extending from the toes to the knee, upon the front part of the limb, by the means of which keep the foot permanently extended upon the leg, the fractured parts may be supported and held in place and at rest by means of strips of adhesive plaster. If the fracture occurs among the metacarpal or phalanges, bones in the body of the foot, there will in all probability be laceration with a fair prospect for amputation. When amputation is not compulsory from the degree of injury, carefully replace the fragments into position, apply water dressing, resting the foot on a cushion on a level with the hip.

Fracture of the breast-bone. (sternum.)

This form of fracture is exceedingly rare, and usually arises from direct violence. We have depression at seat of injury, shortness of breath, pain and spitting blood. To reduce this injury, bind the chest over a pillow placed under the back; adjusting the fragments, retaining them in place

by broad adhesive straps, applied over the injured parts, extending to the well parts on either side. Life is greatly endangered, not infrequently lost, by these injuries.

Fracture of the ribs.

Fracture of the ribs happens most frequently to the central ribs. Fractures may occur in two ways: from direct violence; that portion of the ribs which receives the blow being driven in towards the chest cavity, (not infrequently causing injury to the pleura, lung, liver, or diaphragm, often with fatal consequence), and thus broken; or from an indirect violence, the fore part of the chest being forcibly compressed so that the rib is bent outward and snaps. The symptoms are sharp pricking and catching pain at the seat of the injury, increased by deep breathing or coughing. On placing the hand over the seat of injury, and causing the patient to cough, crepitus may be felt, or may be heard by applying the ear to the chest at or near the seat of injury. In the treatment of these cases one need not concern himself so much about the union of the fractured parts, as to the pains suffered by the patient on breathing; see that the patient does not suffer in this way, lest there arises serious inflammation, or other complications of a grave nature in the chest. Coaptation may be effected by compresses over the seat of fracture, if there be angular displacement outwards, or over either ends of the bone, if there is much displacement inwards. The parts may be held in position by strips of adhesive plaster from the sternum, over the injured side to spine, or be supported by broad strips of flannel bandages applied neatly and smoothly around the chest.

Sprains.

Sprains may be classified as those involving the spine, brought about by twists or wrenches of the part by fall from a horse, a sudden jostle, as from mis-step, or from being thrown suddenly to one side, as in a carriage or car, or from various other causes. If severe the patient will in all prob-

ability never fully recover, having what is generally termed "a weak back" during life. In treating these cases, enjoin absolute rest; the importance of which can not be over estimated, guarding carefully against any inflammatory development of the fibrous structure of the spine, extending to the meninges of the cord. Use such lotions, or linaments, as will in your judgment insure an abatement of the pain, or other untoward features of the injury. Of those involving the joints, from a violent twist or wrench wherein the local ligaments are either partially torn or stretched, though no fracture or luxation may have occurred; or of those of muscles and tendons. These injuries are productive of very severe pain, often quite sickening in character, and not infrequently entail troublesome results. We may expect swelling and inflammation, especially of the tissues investing injured joints, followed by stiffness of the parts on the subsidence of swelling; while in the muscles we may have "painful atrophy, rigidity, or local paralysis." The treatment, if the injury is slight, consists in the use of embrocations of a stimulating character, support by strap or bandage with restful position. If the injury be seen before swelling has taken place, where possible, a starch bandage may be applied with good results, supporting the parts steadily, and sufficient to permit the use of the limb at a much earlier date than possible without it. Should there have attained much swelling and inflammation, if the parts permit, immerse for hours in cold water; if you can not do this, apply some evaporating lotion, ice, irrigation, or leeches, if necessary for the reduction of the inflammation. After you have succeeded in reducing the swelling, the injured joint may be supported by a rubber bandage. This may be removed as often as circumstances require, be cleansed, dried and re-applied. It is very easy to apply plaster, or starch bandages, or splints; later, a good washing twice daily in cold water, rubbed well after washing with some good stimulating linament, occasionally exercising passive motion to prevent stiffness of joint. Injuries of this kind are too often carelessly or lightly consid-

ered by the patient and friends at time of accident, but little attention paid to the injury and that, not only of the most temporary, but too often of an improper character. The results are those of a painful nature and containing, where with proper care they might have been prevented, through life.

Frozen limbs.

Keep the patient in a room where there is no fire, rub the frozen members with snow, or cloths dipped in cold water, with the hands, and as reaction comes on wrap in soft woolen. If gangrene supervenes, amputation will become necessary.

Fire.

Should your clothing take fire, slide your hands down the dress, keeping them as compact and still as possible ; while doing this sink quietly to the floor on the knees, keeping face averted from flame or smoke, if any, by this means the fire may be extinguished. If not, lie down and roll, if help is near let the burning garment be enveloped in carpet, or any heavy wrap that may come handy—woolen preferred.

Fainting.

In fainting place the patient carefully on the back, loosen tight clothing, and let alone in ordinary cases. If from shock or other extraordinary cause, unloosen clothing carefully giving attention to ventilation, some evaporating lotion may be applied to head, ammoniacal salts, etc., to the nostrils for inhalation. The best general rule is place in a comfortable position and—hands off.

Foreign bodies in the eye.

Again, hands off is good advice to the sufferer so far as applies to the patient own hands. Do not rub the eye. If alone, and the particle is under the upper lid, take the upper eye lashes between thumb and finger, raise the lid from ball of the eye, now pull outward and downwards until the lower

eyelash is covered then let go, by this means the lower eye lashes will frequently catch and remove the offending particles. In case the fragment is deep seated, and cannot be thus dislodged, get some one to catch the lash of the lid under which the offensive particle is, pull steadily and directly out; now take a lead pencil or some small blunt pointed article, place the point pretty well back on the eyelid, press gently with the instrument and at the same time carefully turn the eyelid back upon the point of the instrument, having everted the lid, the foreign substance may in the large majority of cases be removed, after which bathe the eye thoroughly with clean, cold water, place a light linen pad, to prevent motion of the eye lid, over which tie a bandage.

Swallowing poison.

This will be treated more at length in another chapter. Upon short stop principles, give your patient, if an alkali has been taken, dilute acids, as vinegar; if acids have been taken, administer lime water, or frequent, repeated doses of chalk, etc. If uncertain as to the character of the poison, the ever handy draught of water, salt and mustard may be given until vomiting is freely provoked, sweet oil, lard, white of an egg and milk are frequently servicable.

A summary of this chapter may be often serviceable. In the matter of *splints*, they may readily be made of thin flexible boards, past-board, leather, tin, etc., prompt treatment, in cases treated of in this chapter, is often of prime importance, influencing for good, not only temporarily, but during the entire course of recovery. At the earliest moment acquaint yourself with exact history of case. If an incised or contused wound, wash and cleanse of foreign substances. If the bleeding is not free, apply plaster or cold or wet bandage. If free from a moderate cut, apply flour and salt, half and half; if the cut is severe, use pressure with finger over artery above wound, or use the handkerchief, stone and stick, compresses, etc.

In a punctured wound, or wound made by a bullet, if by the latter, and superficial, treat as lacerated or contused, if deep, it is a case for the surgeons. In these as above cases cleanse the wound, removing foreign particles, check bleeding, guard against shock, give rest and quiet.

In fractures we may expect swelling. If it be present it would not be advisable in the non-professional to attempt the application of splints and roller bandage. The patient's position being made comfortable, the injured part, if it be a limb should be placed in as nearly a natural position as possible, there supported by sand bags, small sacks of bran, pads of tow ; if the thigh, lay on a long pillow and bind it to limb at intervals by straps or broad strips of muslin. Apply cold cloths, etc., to seat of injury. After subsidence of swelling, wash parts well with soap and water and dry thoroughly before bringing the fractured bones into proper position and applying splints and bandage. If it becomes necessary to transport the patient any distance before adjusting the fracture, if it be of the lower limb, place in as nearly natural position as possible, pad well some splints that will extend to, or above the knee from the heel, bind these on either side of the limb sufficiently firm as to prevent motion of the parts, yet not so tight as to cause pain. If of the thigh, extend the outside splint to the hip, the inner one as high as possible, pad and arrange as in the lower limb. In the absence of other means place pads between the two limbs at knees and ankles, and bind the limbs together, thus improvising a most excellent splint in the use of the uninjured limb. Similarly treat the lower arm with pad and splint, placing arm in a sling ; likewise the upper arm, placing lower arm in sling for support. If the injury is to collar bone, place pad in axillary, support arm in sling, securing upper arm by bandages, or a few turns of the roller around the arm and body to prevent injury from jarring or shaking. In dislocation, if you cannot reduce the luxation insist on entire rest and quiet until the arrival of the surgeon. Meanwhile making cold application to the parts.

If a sprain, the part may be supported by a bandage well wetted, this bandage may be necessarily continued; in this case cold water may be poured on it, or otherwise kept wet until time for its removal.

CHAPTER II.

LODGMENTS OF FOREIGN BODIES IN THE GULLET OR AIR

PASSAGES.

Lodgment of foreign bodies in the air passages are always looked upon as serious, requiring that prompt and energetic means be used that the life of the patient may be saved, not generally so serious, are similar accidents to the *æsopagus* (gullet,) but considered sufficiently so to demand attention. Place the patient, in treating these cases, in a sitting position where a strong direct light may fall into the mouth, quickly examine the back of the throat, passing the finger far down behind the root of the tongue, and by means of the finger or a pair of forceps, which may be improvised from a piece of wire, or with any other substance which you may be able to convert into a blunt hook or pliers, extract the body; should these means fail, try an emetic. If the patient is a small child the offending body, if it be a marble, or some such round hard body, may be ejected by turning the child heels up, and prevail upon it to cough or strike it a few sharp jarring blows between the shoulders, should these efforts prove futile, the aid of a surgeon should be invoked at the earliest possible moment.

POISONS AND THEIR ANTIDOTES.

Cases of poisoning are not only common but are, indeed,

in so many instances, "simply awful" in their effects that we are led to wonder why more care is not exercised to prevent its occurrence, and yet, when we come to consider the various avenues by which poison may gain entrance into the system our surprise is materially lessened. Poisons may be divided into three classes according to their mode of action on the system.

1st. The *irritants*, partaking of the common characteristics which betoken their name. These when taken in ordinary doses speedily occasion violent vomiting and purging. It may be well to note here the difference between corrosive and irritant poisons, inasmuch as I shall not embrace the corrosive as one of the three classes. Under the action of the corrosive the symptoms are immediate, because mere contact produces disorganization of the tissues, usually indicated by some well marked symptoms; while in the irritant, in most cases, the indications are not so rapidly manifested, half hour, or more, frequently elapsing after taking the poison until it declares its presence in the system.

2nd. *Narcotic* poisons confine their operations to the brain and spinal marrow, and are followed by headache, giddiness, paralysis, stupor, etc., either immediately, or sometimes after the imbibition of the poison.

3rd. *Narcotics*.—*Irritants* having a compound action, and, are all derived from the vegetable kingdom. These at variable periods after being taken, produce the symptoms of the irritants, followed sooner or later with the symptoms of the narcotics.

ACIDS.—Sulphuric, Nitric, Muriatic, Oxalic, Phosphoric, Fluoric, Tartaric and Prussic.

Symptoms,—acid burning taste in mouth, sharp pain in throat, stomach and bowels, frequent vomiting of bloody fluid, that will bubble or hiss when brought in contact with chalk, soda, etc., reddens blue litmus, copious stools more or less bloody, hiccough, tender abdomen; difficult breathing; irregular pulse; thirst—drink increasing the pain; liquid quickly ejected, frequent efforts to urinate, cold sweat, al-

tered countenance, convulsions, death. Briefly: great heat, burning pain in stomach.

Treatment,—Mix an ounce of calcined magnesia with a quart of water and give a wine glass full every two minutes, or in like manner use whiting, chalk, lime-water or pieces of plaster from the wall, or warm soap suds. If Prussic acid is the offending agent, give emetic quickly, following vomiting with oil of turpentine or ammonia, brandy or other stimulants to rouse the system, this with friction to extremities.

ANTIMONY.—Tartar emetic.

Symptoms,—copious and obstinate vomiting; abundant stools, cramps, symptoms of intoxication, prostration and fainting.

Treatment,—not infrequently it is its own antidote, in that it produces such active vomiting. If vomiting is not free encourage it with large drinks of mild fluids, strong green tea, is most excellent, tannic acid, willow, oak, current, or blackberry leaves or bark tea may be given freely.

ARSENIC.—Paris green, Fowler's solution, Ague drops, Rat poison.

Symptoms,—Pain and burning in stomach, dryness of throat, stools deep green and intensely offensive, difficult respiration, great prostration, paralysis of feet and hands, delirium, convulsions, urine high colored, often bloody, etc.

Treatment,—Large quantities of milk, or raw eggs, linseed tea, lime-water, chalk and water, followed by a large dose of castor oil.

ALKALIES.—Potash, Soda, Ammonia, Disinfecting fluids, Sal Volatile.

Symptoms,—Acid urinous taste, heat in throat, vomiting up bloody ejecta that boils by adding acids, acute pain in stomach, copious stools, colic, death.

Treatment,—Vinegar, lemon or other acids, followed with olive, linseed, or other oils given freely.

COPPER, and its preparations,—Blue Vitrol, Verdigris, to this we may add, food cooked in unclean copper vessels, pickles, etc.

Symptoms,—Coppery taste in mouth, parched tongue, severe retchings in efforts to, and in vomiting, ejecta blue or green colored, dreadful colic, clammy sweat, pain in head, urine scanty, cramps, convulsions, death.

Treatment,—In general there is violent vomiting, the salts of copper themselves are powerful emetics. The efforts of the stomach should be promoted by the free use of warm water, milk or any mucilaginous drinks, whites of eggs given freely followed by strong tea.

LEAD, and its preparations—Red-lead, White-lead, Sugar of Lead, also foods that have stood in leaden vessels.

Symptoms, These are by no means active poisons, and may be taken in quite free doses without positive injury, nevertheless, at times they are fatally so. We will have metallic taste in the mouth, constipation, violent cramp in limbs, colic, vomiting, hiccough, death.

Treatment,—consists in the free use of alkaline sulphates, —soda, or magnesia, say of Rochelle or Epsom salts, two ounces in a pint of water; give a small wine-glass full every fifteen to twenty minutes until free action of bowels. If a large dose of the poison has been swallowed, a good dose of sulphate of zinc will often quickly bring the poison up.

LUNAR CAUSTIC.—Nitrate of Silver. This may be swallowed by a piece of nitrate slipping from fingers when penciling the throat.

Symptoms.—Intense burning pains in stomach and bowels and greatly embarrassed respiration.

Treatment.—Administer instantly a large dose of a strong solution of common salt, the chemical action is to form the insoluble chloride of silver in the stomach, after which evacuate the stomach with an emetic; or common soda a tablespoonful to a pint of water, giving a wine glass every two or three minutes, to be followed by mucilaginous drinks and purgatives.

If symptoms of inflammation yet supervene, send for skilled help.

MURCURY.—Corrosive Sublimate, Calomel, Red precipitate, Vermillion.

Symptoms.—Metallic taste in mouth, annoying tearing pains in stomach and bowels, feeling of fulness and burning in throat, at times free salivation, diarrhœa, faintings, cold sweats, cramps in all members, pulse quick and hard, frequent vomiting of fluid mixed with blood, convulsions, death.

Treatment.—Give repeatedly large doses of white of egg and water, given every few minutes. If corrosive sublimate has been taken, the albumen converts it into the Submuriate of Hydrargyrum, which, acting on the bowels, carries itself off by purging; soap or flour will produce like results. Warm bath may also be employed during convalescence, the patient should subsist entirely on broths, milk and demulcent fluids.

NITRE.—Saltpetre.

Symptoms.—When taken in large doses, a frequent mistake from the salt being mistaken for sulphate of soda (glauber salts). It excites nausea, vomiting and excessive purging, stools bloody. Excruciating griping pains in the lower bowels with a sensation as of fire in the stomach, laborious breathing, cold extremities, convulsions and occasionally death. It is not uncommon in these cases, where very severe, and the patient recovers from the acute effects, that paralysis partial or complete, for life, results.

Treatment.—Empty the stomach, and dilute freely with milk, and bland, mucilaginous drink; injection, of an oily character into the rectum; give opium. In olden times they bled for relief of the hard pulse, and I do not think it in this case, much out of the way.

OPIUM.—Morphine, Laudanum, Paragoric, Soothing Syrups, Syrup of Poppies, etc.

Symptoms.—Drowsiness and stupor, delirium, sighing, pupil of eye small, countenance pallid, lips blue, skin cold, deep, slow noisy breathing, coma, death.

Treatment.—If possible get a physician to use the stomach pump. If a physician can not be obtained, empty stomach by giving one half ($\frac{1}{2}$) drachm of sulphate of zinc or from five (5) to ten (10) grains sulphate of copper, dissolved in an ounce of water, and given immediately. The vomiting

should be continued by irritating fauces with the fingers, or a feather, let this be followed by large drinks, of strong black coffee, alcoholic stimulants, dashing cold water in a stream upon the head, face and chest; keep the patient awake by keeping in constant motion in the cool open air; artificial respiration may be resorted to if necessary, as also mustard to feet, stomach or spine. Immersion in a tepid bath is a very useful means of subduing drowsiness.

POISONOUS PLANTS.—Hemlock roots, mistaken for wild parsnips, Fool's Parsley, Mushrooms or other fungi of the *agaric* family, particularly of the genus *amanita*. "An ounce of preventive is worth a pound of cure," is an old and trite saying. Since so many are fond of mushrooms, etc., a word or two as to how to tell those that are safe to eat from those that are not, may not be out of place here. As a general rule, those which have an acrid juice, a dull leathery colored flesh, that grow in obscure shady places, on trunks of decaying trees, on rocks, that have a glary, or very shining surface, an offensive odor, that become brown when cut, are to be rejected. If you did not gather them they may be tested by cutting and applying a piece of silver to cut surface; if it be blackened, the fungi is bad. If they are cooked in vinegar or lemon juice. it will greatly aid in destroying their poisonous properties, if possessed of any.

Symptoms.—Different fungus produce somewhat different effects on the animal system; the more general symptoms which may be observed from six to twenty hours after partaking of the fungi, or plant, are nausea, pains in stomach, vomiting and purging, colic, cramps of the lower extremities, convulsions. Both partial and general, unquenchable thirst, vertigo, delirium, coma, death. In fatal poisoning from these fungi the patients mind is retained to the end of life.

Treatment.—Empty the stomach at the earliest possible moment. Mustard and water may be frequently used successfully. Three or four grains of tarter emetic, or twenty-four grains of powdered ipicac in solution with two ounces of common salts, (soda sulphas.) Castor oil is a most excellent pur-

gative in these cases. After evacuating stomach and bowels, give ten to sixty drops of ether in mucilage, dilute vinegar or other acidulated drinks. If there is faintness or sinking present give freely of the ether, or other stimulants, but not to excess.

Poisonous Fish, include the Mussel, Old Wife, Sea Lobster, Sand Crab, Yellow Billed Sprat, Congor Eel, Bottle Fish, Rock Fish, King Fish and others containing a septic poison, possessed, more than likely, not in the properties so much, as from the unhealthy state of the fish itself.

Symptoms.—Feeling of weight at stomach, nausea, dizziness, headache, immoderate thirst; constriction in throat, noisy breathing; itching; eruption all over the skin like nettle rash, twitchings and coldness of the extremities; occasionally terminating in death.

Treatment.—Empty stomach with powerful emetics as in poisons with fungi; follow with purgatives of oil, then with vinegar and water, or other acidulous drinks; sponge body with solution of vinegar; apply mustard to stomach; if convulsions are threatened give opium freely; in after treatment as to stimulants and tonics, treat as in former cases.

PHOSPHOROUS.—Lucifer matches.

Symptoms.—Phosphorous when taken, even in moderate quantities, rapidly produces death. The symptoms are violent pain in the stomach; a hot garlicky taste; great excitement in the arterial system; horrible convulsions—forerunners of death.

Treatment.—Fill the stomach with liquids by which its combustion is retarded, possibly checked completely, and vomiting induced without increasing the irritation of the parts. Lard or olive oil is very serviceable in frequent doses of a teaspoonful each. A solution of magnesia is very efficacious in neutralizing the phosphoric acid which is formed in these cases.

POISONING by the use of canned fruit, should be treated as directed in lead poisoning.

RUX TOXICODENDRON or Poison Ivy, may be cured by im-

mersing the hands in, or bathing the affected parts with water as hot as can be borne, for five or more minutes every two hours. A very efficient remedy is a strong decoction of sassafras; bathe thrice daily, and if necessary apply cloths wetted with the liquid to the parts. I have had very satisfactory results from this latter treatment. The hot water treatment comes very highly recommended; salt and water, and sugar of lead lotion are often used and are in high repute with the masses.

STRYCHNINE.—Nux vomica, Rat poison, etc.

Symptoms.—Sensations of drunkenness; giddiness, twitchings and rigidity of limbs as in lock jaw; twitchings, decidedly difficult respiration; excruciating pain under the lower part of the breast bone; *Opisthotinos*, that is, lying on the head and heels, the back bowed up; suspension of the heart's action; suffocation—death in many cases.

Treatment.—Run for the nearest doctor; meanwhile, with prompt emetics evacuate the stomach, with purgatives the bowels, give freely of acidulous drinks, give opium, etc., to quiet.

SNAKE BITES, of these, those most commonly inflicting the bite are the Copper-head, Rattlesnake, Adder, Moccasin Vipe and the Black viper.

Symptoms are not waited for; a knowledge of having received the bite is sufficient.

Treatment.—Apply a moderately tight ligament above the bite; remove the virus by suction immediately, then cause the wound to bleed freely by applying warm water, next apply lunar caustic or an iron rod heated to white heat, after which apply pledgets of lint, saturated in equal parts of sweet oil and ammonia, or oil of turpentine, or instead of above, cut out the entire affected part; causing it to bleed freely; then sear with caustic repeatedly, meanwhile applying poultices; creating an ulcer that must heal slowly with granulations. Administer ammonia internally with warm diluents. Whiskey in extraordinary quantities, has been used with, as has been claimed, success. Dr. Brook's celebrated negro re-

medy is : First suck or cauterize the wound, then take plantain and horehound, in summer, root and top, bruise together in a mortar, extract the juice, of which give at earliest moment a large teaspoonful, repeat in half an hour, if not relieved. If jaws are set, place a finger just inside a corner of the mouth, draw the cheek away from the teeth and pour the medicine into the vacuum thus created ; give yourself no uneasiness it will find its way through the right channel. Apply now a leaf of tobacco moistened with rum to the wound.

MAD DOG BITE.—Treat the same as above. It is additionally recommended that after the wound has even healed up, the parts should again be removed and caustics applied. This seems heroic, yet what would we not do to secure ourselves against hydrophobia. There are many vaunted remedies for this, but the safest is the judgment of a skilled physician. Where poisons have been swallowed or received through wounds, etc., the safest and best thing to do, is to call your physician ; meanwhile, since in these cases prompt and decisive action at the moment, not infrequently saves the patient's life. If the poison has been swallowed, vomit and purge, thereby promoting as prompt an eradication as may be possible of the poison from the system, encourage perspiration and energetic action of the kidneys ; reduce pain, when marked with opiates, etc. If by wounds, apply the ligature etc., arouse the secretions to their fullest extent.

As A SUMMARY to Poisons and their antidotes. I cannot do better than to insert the following from the pen of the painstaking Dr. Dulles.

Decayed meats or vegetables usually excite vomiting, which should be encouraged till the stomach is empty, and followed by a dose of castor-oil and some powdered charcoal. This is usually all that is necessary.

We have now completed the list of poisons that are at all common, and have seen what should be done in almost any case that is likely to occur. In conclusion, let it be remembered that, when there is an alarm of poisoning, some *one*, at least *must keep cool* ; then that a physician is to be summoned

(sending him word, if possible, what poison has been taken); and that, until his arrival, the course indicated above should be followed. To save time in an emergency, the following table may be consulted, which gives the name of each poison we have already studied, and the proper treatment for it:

Poisons.	Treatment.
1. Unknown	{ Provoke repeated vomiting ; Give bland liquids ; Stimulate, if necessary.
2. Acids— Sulphuric, Nitric, Muriatic, Oxalic. }	{ . . . { Give an alkali ; Provoke vomiting ; Give bland fluids ; Secure rest ; Stimulate, if necessary.
3. Alkalies— Hartshorn, Soda, Potash, Lye. }	{ . . . { Give an acid (vinegar) ; Provoke vomiting ; Give bland liquids ; Secure rest ; Stimulate, if necessary.
4. Arsenic— Paris green, Sheele's green. }	{ . . . { Provoke vomiting ;* Give dialyzed iron and salt* Give a dose of castor oil ; Secure rest ; Stimulate if necessary.
5. Sugar of Lead.	{ Give Epsom salts ;* Provoke vomiting ;* Give bland liquids ; Give dose of castor oil.
6. Corosive Sublimate, Tartar Emetic,	{ Provoke vomiting ;* Give strong tea without milk ;* Give raw eggs and milk ; Give dose castor oil ; Stimulate if necessary.
7. Phosphorous	{ Provoke vomiting ; Give five-grain doses of sul- phate of copper ; Give dose of magnesia, but no oil.

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| 8. Opium—
Laudanum,
Paregoric, etc.
Cloral. | } | { | Provoke vomiting ; repeat-
edly ;
Give strong coffee without
milk ;
Keep up the breathing. |
| 9. Strychnia | } | { | Provoke vomiting, once or
twice ;
Give a purgative.
Secure absolute quiet. |
| 10. Aconite | } | { | Provoke vomiting ;
Stimulate well. |
| 11. Lunar Caustic (nitrate
of silver.) | } | { | Give strong salt and water ;†
Provoke vomiting ;† |
| 12. Alcohol | } | { | Provoke vomiting ;
Give hartshorn and water. |
| 13. Jamestown Weed,
Hemlock,
Nightshade (bella-
donna.)
Toadstools,
Tobacco, | } | { | Provoke vomiting ;
Stimulate well. |
| 14. Decayed Meat and
Vegetables. | } | { | Provoke vomiting ;
Give a purgative ;
Give powdered charcoal. |

*Repeat several times. †Repeat many times.

To *provoke vomiting*, warm water may be used, with or without ground mustard (a table-spoonful to a pint of water), or ipecac (a teaspoonful of the powder or a table-spoonful or two of the sirup), and thrusting a finger down the the throat. It is best to give large quantities (that is, a pint at a time) of warm water whenever vomiting is to be excited.

Bland liquids are milk, raw eggs, some sort of oil, gruel, etc.

Stimulants are tea, coffee, whisky, wine etc., or hartshorn and water. Of this a teaspoonful in a teacupful of water will be enough for a dose. In making tea or coffee one must not wait to do it as for the table, but mix hot water and the leaves or grounds, squeeze them well, stir together, and give the whole—leaves, grounds, everything. At the same time some

may be made regularly if there are conveniences for it.

Alkaline antidotes are hartshorn and water, (a teaspoonful in two teacupfuls of water), soap and water, lime, whiting, soda, chalk, tooth-powder, plaster, magnesia, whitewash, and even wood ashes.

Acid antidotes are vinegar and lemon juice.

In giving an antidote never wait for it to dissolve. Just stir it up in any fluid at hand except oil, and have it swallowed immediately.

CHARLES W. DULLES, M. D.

APPARENT DEATH.

SUSPENDED ANIMATION—ASPHYXIA—APNŒA.

In this sub-division of *short stops* it is my purpose to include all cases of sudden suspension of the phenomena of life, whether from drowning, hanging, sun-stroke, the inhalation of noxious gases, as foul air in wells, etc., or from whatever other cause, capable of suddenly suspending the breathing and the action of the heart without destroying the integrity of the system.

This suspension of the respiratory process is usually designated by the very inappropriate name of *asphyxia*, which literally signifies, want of pulse.

I prefer the term *apnoea*, as used by Dr. Watson, as of an origin corresponding with its application.

Asphixia, from drowning.

When a person who has been submerged in water until all manifestations of life are destroyed, is taken out, the face exhibits a turgid and livid appearance; the eyes are open and staring; the limbs somewhat stiff; the tongue usually thrust a little beyond the teeth; and, in most instances, the pit of the stomach is tense and tumid.

Considerable controversy has existed concerning the mode in which drowning causes death. Many have contended that suffocation is produced by the water rushing into, and filling up the cavity of the lungs.

On the other hand it has been satisfactorily ascertained, that in many instances of death from drowning, very little or no water gains admission into the lungs; and it is now, I believe, universally admitted that so long as the larynx retains any degree of irritability, no water can enter into the respiratory passages; and, consequently, that whenever water is found in the lungs, it must have entered into them after life was destroyed. Such is the peculiar sensibility of the respiratory passage, that the moment water or any other substance not in harmonious relation with them comes in contact with the mucous membrane of the larynx, the glottis is instantly thrown into a state of spasmodic constriction, which wholly prevents the ingress of the irritating fluid into the trachea. When, however, the sensibility of these parts is blunted, the water may rush in; and hence it is not uncommon to find more or less of this fluid in the air-passages of those who have lain a long time under water.

Many have supposed that drowning destroys life by apoplexy, that the functions of the brain are at once destroyed by congestion. On the contrary, many observations have been published, which show that vascular congestion within the head, though an occasional, is by no means a common or general phenomenon.

Bichat on Life and Death, has given a very satisfactory explanation of the mode in which death is brought on by drowning and other analagous causes of asphyxia.

When respiration is interrupted, the blood ceases to undergo the necessary chemical changes in the lungs; black or venous, instead of florid and arterial blood, is immediately sent to the left side of the heart, and thence throughout the system. Now it is well ascertained that the regular transmission of arterial or red blood to the brain is indispensable to the performance of its functions; and, therefore, one of the

first effects of interrupted respiration towards the destruction of vitality is a cessation of cerebral action, for want of red or arterial blood to excite the brain. The direct and instantaneous consequence of this cessation of cerebral action is cessation of the animal functions, from want of excitement in the organs of these functions by the nervous influence and the red blood; and from the same causes the heart soon ceases to act, and the circulation stops. Death from asphyxia, by submersion, strangulation, or the inhalation of mephitic gases, commences, therefore, in the brain, and those vital actions that are immediately dependant on the exercise of its functions namely, sensation, voluntary motion, thought, and the mechanical effort of respiration to cease a short time before those actions which constitute what are called the organic functions; that is, the circulation, absorption, exhalation, etc., are obliterated.

We will offer no apology for being thus minute in directions; for in no other instance is it so important that the people should possess the necessary knowledge to act without waiting for the aid of medical skill, as in these cases, a very few minutes delay make the difference between life and death.

I will give the rules of the Metropolitan Board of Health of the city of New York, as taught by Professor Benjamin Howard.

Rule 1. Unless in danger of freezing, never move the patient from the spot where first rescued, nor allow bystanders to screen off the fresh air, but *instantly* wipe clean the mouth and nostrils, rip and remove all clothing to a little below the waist, rapidly rub dry the exposed parts, and give two quick, smarting slaps on the stomach with your hand.

If this does not succeed immediately, proceed according to the following rules to perform artificial breathing.

Rule. 2. Turn the patient on his face, a large bundle of tightly rolled clothing being placed beneath his stomach, and press heavily over it upon the spine for half a minute.

Rule 3. Turn the patient quickly again on his back, the roll of clothing being so placed beneath it as to make the short ribs bulge prominently forward, and raise them a little higher than the level of the mouth. Let some bystander hold the tip of the tongue out of one corner of the mouth with a dry handkerchief, and hold both hands of the patient together, the arms being stretched forcibly back above the head.



Rule 4. Kneel astride the patient's hips, and with your hands resting on his stomach, spread out your fingers so that you can grasp the waist about the short ribs. Now throw all your weight steadily forward upon your hands, while you at the same time squeeze the ribs deeply, as if you wished to force everything in the chest upwards out of the mouth. Continue this while you can slowly count, *one, two, three*, and then suddenly let go, with a final push, which springs you back to your first kneeling position.

Remain erect upon your knees while you can count, *one, two*, then throw your weight forward as before, repeating the entire motions, at first about four or five times a minute, increasing the rate gradually to about fifteen times a minute, and continuing with the same regularity of time and motion, as is observed in the natural breathing which you are imitating.

Rule 5. Continue this treatment, though apparently unsuccessful, for two hours, until the patient begins to breathe; and for a while after this help him by well timed pressure to

deepen his first gasps into full, deep breaths ; while the friction of the limbs, which should if possible, have been kept up during the entire process, is now further increased.

Rule 6. After treatment, externally.

As soon as the breathing has become natural, strip the patient rapidly and completely. Enwrap him in blankets only. Put him in bed in a room comfortably warm, but with a free circulation of fresh air, and except for the administration of internal treatment, let him have perfect rest.

Internally. Give a little hot brandy and water, or other stimulant at hand, every ten or fifteen minutes for the first hour, and as often thereafter as may seem expedient.

In order to make this chapter as complete as possible, will add two other tried methods of resuscitation. Dr. Marshall Hall's "ready method" has been found successful in so many cases, even after the body has been in the water a half of an hour.

Rule 1. Treat the patient, instantly on the spot, in the open air, freely exposing the face, neck, and chest to the breeze, except, in severe weather.

Rule 2. Place the patient on his face, with his arms under the forehead, so that the tongue may fall forward, and leave entrance into the wind-pipe free, and that any fluids may flow out of the mouth.



Rule 3. Turn the body gradually, but completely on the side and a little more, and then again, upon the face alternately, to induce inspiration and expiration.

Rule 4. When replaced apply pressure along the back ribs, and then remove it to induce further expiration and inspiration, and proceed as before.

Rule 5. Let these massures be repeated gently, deliberately, but efficiently and perseveringly, sixteen times in the minute only.

The Sylvester method: Lay the patient on his back, and having pulled the tongue forward, draw the arms up slowly over the head, by which means the ribs are elevated by the large fleshy muscles of the chest, which are attached to the arms, and inspiration is produced; the arms are then to be brought down to the side of the chest, which they are to compress in a slight degree, thereby inducing expiration. These movements are to be repeated as slowly as in the Marshall Hall method, and some claim that they give a more complete change of air to the lungs.

Sometimes it is a matter of very great consequence to identify a dead body, and to this end it is necessary, if the features are changed to restore them as much as possible to what they were at the instant of death. This is done in a measure thus: Cover the cleansed body in water; pass through it a stream of chlorine gas. This whitens the skin, improved by adding some common salt to the water, and injecting tincture of steel into some of the blood vessels of the face.

As lives are lost every summer at watering places, — the following suggestions may be seasonable, and ought to be kept about the person or within convenient reach.

If a person is struggling in the water, approach the individual if possible from behind, and raise the head only out of the water by the hair; and as a body loses a third or more of its weight when it is in the water, it requires but little strength to keep the head out of water, and to drag the body to the shore. For the same reason it does not hurt the person much who is thus held up and dragged.

The grasp of a drowning person is so unreasoning and so convulsive, that every effort should be made by the rescuer to escape his clutches.

Persons in the water who can not swim, can keep their heads above the surface for a considerable time by commencing at once a vigorous and quick treading operation, with both arms extended, and the palms of the hand resting on the water, for, small as they are, some support is afforded. At other times, a person who has some presence of mind can support himself for half an hour in the water, and even longer, by throwing himself on his back, clasping both hands under him, throwing his face upward upon the water, his feet extended, so that the nose only is out of the water. We can thus float for some time without the expenditure of much strength. "These things should be thought over carefully by all," says Dr. Hall, "that when there is occasion for them, the mind should feel at home in directing their execution."



Suspended animation from hanging.

The cord should be instantly removed from the neck ; artificial respiration employed, as in cases of drowning, until reaction comes on, or the circulation is restored. Put the patient in a proper position, the head and neck rather high, but not bent forward. Rub the body gently with a cloth, toward the heart. In this way the blood in the veins may be forced onward toward the heart, and may cause it to act by the stimulus of distension. The heart is perhaps the last organ which loses the vitality, and by causing it to contract and send the blood into the lungs, they may be stimulated to

action more than by any other means. Then proceed at once to perform artificial breathing, as directed in the rule given.

Apparent death from noxious gases.

Remove the body into a cool fresh current of air. Dash cold water on the face, neck and breast, and as soon as he can swallow, give him cold wine and water to drink, all the time applying dry friction to the extremities.

Apparent death from burning charcoal.

Some persons very thoughtlessly attempt to warm their sleeping or sitting rooms with a portable furnace or open pan filled with burning charcoal, or live coal from a wood fire. These coals throw off large quantities of Carbonic Acid gas—a deadly poison. This being heavier than atmospheric air, falls to the bottom of the room, and for a tonic may do no damage; but, if there be no chimney-draught, or open door or window, it will rise above the heads of those in the room, and bring on asphyxia and death.

Let such cases be treated the same as the preceding, with the additional measure of attempting to excite breathing, as in the case of persons apparently dead from drowning.

Apparent death from lightning stroke.

When persons happen to be overtaken by a thunderstorm, although they may not be terrified by lightning, yet they naturally wish for shelter from the rain which usually attends it, and therefore, if no house be at hand, generally take refuge under the nearest tree they can find.

But in doing this, they unknowingly expose themselves to a double danger; *first*, because, their clothes being thus kept dry, their bodies are rendered more liable to injury, the lightning often passing harmlessly over a body whose surface is wet; and, *secondly*, because a tree or any elevated object, instead of warding off, serves to attract and conduct the lightning, which, in its passage, frequently rends the trunks or

branches, and kills any person or animal that happens to be close to it at the time. Instead of seeking protection, then, by retiring under the shelter of a tree, hay-rick, pillar, wall or hedge, the person should either pursue his way to the nearest house, or get to a part of the road or field, which has no object that can draw lightning towards it, and remain there until the storm has subsided.

"It is particularly dangerous to stand near leaden spouts, or iron gates at such times ; metals of all kinds have so strong a conducting power for lightning, as frequently to lead it out of the course which it would otherwise have taken.

When in the house, avoid standing near the window, or door, or walls, during a thunder-gust. The nearer you are placed to the middle of a room the better,

When a person is struck by lightning, strip the body and throw bucketsful of cold water over it for ten or fifteen minutes ; let continued frictions and inflations of the lungs be also practiced ; let gentle shocks of electricity be made to pass through the chest, when a skillfull person can be procured to administer them ; and apply blisters to the chest."

Apparent death from the effect of cold.

The body should be brought into a room in which there is no fire, and rubbed with snow or cloth dipped in cold water. The friction should be directed from the stomach towards the extremities. In a few minutes after, the temperature of the water should be very gradually increased, so as not to heat the body suddenly. Stimulants may be applied to the lips and nostrils.

The lungs must be inflated as in the treatment of the drowned. When the natural warmth of the body is returning, the patient should be put into a bed, wrapped in dry blankets, and be well rubbed with a flesh-brush. A little weak wine and water may be given, or a clyster administered containing a little wine or something slightly stimulative.

Strict diet should be adhered to for some time after

recovery. When the limbs only are frozen, the application of snow or wet cloths is to be confined to the affected parts; half a tea-spoonful of hartshorn, in a glass of water, may be advantageously administered, or a little weak spirits and water.

Still-birth.

If the newborn child has not already breathed, the navel-string, if it still pulsates, should not be tied until the after-birth is about to come away; for the child is still nourished from the mother.

When the child is detached, its mouth and nostrils should be cleansed of all mucus, and give it one or two smart slaps with your open hand on the belly, and it should be wrapped in warm flannels, or it may be placed to a warm bath. Artificial respiration should be employed, as also frictions, stimulants to the nose, to the temples, and to the pit of the stomach. When there is no pulsation to be felt either about the heart or at the navel-string; when the skin is pale, discolored, or livid, the flesh flabby, the limbs pliant and without motion, and, it may be, to all appearance dead, the means just pointed out should be, nevertheless, tried and persisted in for a considerable length of time. But let the child be instantly detached, in order that no time may be lost; for its remaining connected with the mother can be of no avail. The simplest means of effecting artificial respiration is to push the wind-pipe gently backwards, to compress the gullet, and then closing the child's nostrils, to blow into its mouth, either by applying directly on it one's own mouth, or interposing between the two a bit of gauze or muslin. Gentle pressure upon the chest and belly should be made by turns with the inflation or blowing into the lungs, in order to expel the air, and prepare the lungs to receive a new supply. When the breathing commences, but goes on feebly, a little cordial or gentle stimulant should be given; it is frequently of great service. But when the breathing commences freely; appearing, however, slow and labored, and the child

is in a state of stupor, it is in a state bordering on apoplexy ; and then the ligature should be loosed from the navel-string, and a tea-spoonful or two of blood should be allowed to escape. If the good effects of this are soon apparent, the ligature should be again applied ; but if they are not soon manifest, under these circumstances, also, the ligature should be reapplied, as the too great loss of blood would tend to throw the child into the same state of debility, or asphyxia, as that from which it has been withdrawn.

The following remarks by Dr. Currey merit attention. "Before children are born, and until they have begun to cry, the tongue is drawn back into the throat, so that a kind of valve, which is attached to its root, is shut down over the opening into the wind-pipe, and the entrance of any foreign matter into the lungs thereby prevented. A finger should be, therefore introduced into the throat, and the root of the tongue be drawn forward, and the valve raised before proceeding to inflation." The upper part of the wind-pipe should also be pressed gently backwards and downwards, as noticed in the treatment.

Apparent death from hunger.

In case of starvation, the person should not be fed too freely at first, from fear of a fatal result. Injections of small portions of milk, beef tea or mutton broth, should be used. As soon as he can swallow, give warm milk, drop by drop through the mouth ; the quantity may be increased until the patient can take a teaspoonful, then a few drops of wine or brandy may be added. Rice water, barley water, and toast may also be used. Nourishment should be given every ten or fifteen minutes ; as the patient improves, beef tea or broth may be given in small quantities.

Apparent death from falls or blows.

Put five drops of tincture of Arnica in a tumblerful of water, and give a tea-spoonful every two or three minutes until several doses have been taken. The parts which have

been injured by fall or blow, should be bathed with a solution of the tincture of Arnica and cold water. Injections of the same mixture may also be used.

Apparent death from violent mental emotions.

See Fainting.

Of the signs of real death.

If the heart beat cannot be detected by the ear applied close to the left side of the chest, near to the left nipple, and pulsation have ceased in the arteries of the neck and arm; if the chest remains thoroughly motionless, and rising and falling of the ribs can no longer even in small degree be observed, while a mirror put before the mouth has no dimness on its surface from moisture, then the bystander will be justified in concluding that death has occurred.

BURNS AND SCALDS.

Burns or scalds, unless extensive, are not particularly dangerous. When, however, they cover a large surface, or are deep, they are both dangerous and troublesome. It becomes every one to know how to act in case of such accidents, because burns are inflicted suddenly, medical men are not always at hand, and yet it is necessary to do something immediately, to relieve the acute pain which follows these injuries.

The want of presence of mind at the time of the accident often renders burns more severe than they otherwise would be. How frequently does it happen that females, when their dresses catch fire, instead of taking the most prompt means of extinguishing the flames, generally increase them, by running about screaming for assistance, when they ought to lie down on the floor and roll over and over on the

carpet. The erect position of course allows the flames to spread and rise rapidly to the head and neck, parts where the fire is most to be dreaded ; whereas the horizontal position, on the contrary, has a considerable effect in preventing their extending. In such cases the hearth-rug, table-cover, a shawl, or any woollen article, are the things to be used by any one who may happen to be near, for the purpose of extinguishing the flames. It also frequently occurs when the legs and feet are scalded, that instead of cutting the stockings and removing them gently, they are drawn off, carrying the scarf-skin along with them ; and the true skin being then exposed, the most excruciating pain is produced.

Treatment.

The principle on which burns are now treated is that of excluding them from the air ; which may be done by covering the burned or scalded parts with flour, or enveloping them with cotton wool.

It is in general advisable before employing the cotton, either to immerse the parts in cold water, if their situation will admit of this being done, or apply to them pieces of fine linen dipped in cold water, or vinegar and water, and wetted frequently during several hours, or until the pain and heat are removed. But when the burned surface is extensive there is always a sensation of chilliness, which is generally accompanied with shiverings. In this case cold applications would do harm, and they ought not to be employed, even when the burn is slight, if there be a tendency to shivering ; nor should they be continued if the patient be not relieved by them, or if they bring on shivering ; and they are always improper when the injury is on the breast, belly, or on any part of the trunk of the body.

When the legs and feet are scalded, they should be plunged as soon as possible into cold water, and kept immersed in it a considerable length of time before the stockings are removed. By this means blisters are often prevented.

The blisters, or vesicles, which frequently make their appearance suddenly, in consequence of a burn or scald, should be punctured with a needle, and the fluid allowed to escape. The burned parts are afterwards to be washed with tepid water before applying flour or cotton.

The application of flour to burned and scalded parts has long been preferred to any other form of treatment, inasmuch as the flour relieves the pain almost as soon as it is applied, thus rendering the application of cold lotions unnecessary.

In cases of deep burns, treated either by cotton or flour, it becomes necessary to remove the dressing and examine the parts about once a week, until the sloughs have separated, and subsequent discharge of matter has diminished. After the dead parts have been detached, it is often found difficult to keep down proud flesh; in such cases pressure over the dressing by means of sheet lead, has an excellent effect when properly graduated. The principal advantage derived from cotton or flour is during the acute stage, and therefore when the crust or paste formed in the manner above mentioned is detached from the ulcerated surface, the ulcers may either be treated by astringent lotions, pressure, keeping the proud flesh under by touching it with lunar caustic or blue vitriol, and the other means in general use in such cases, or the flour or cotton may be re-applied and removed every six or eight days until a cure is effected.

The dressings should be changed quickly, so that the parts may be exposed as little as possible to the air; and when the burned surface is extensive, it must not be all exposed at once.

If the burn can be immediately wrapped in a mixture of lime and sweet oil, or lime and lard, then wrapped in cotton or a cloth. If the burn is not very extensive it may be relieved by painting it with collodion, and wrapping it in a soft cloth. Care must be taken in changing the dressing, to expose it to the air as little as possible. A few drops of carbolic acid added to the oil of thyme have been found ex-

cellent. Common baking soda, saturated with water and spread on thickly, is excellent and always at hand. If the burns be not very deep, cotton cloths wet in alum water and applied quickly are of much use.

In whatever manner burns may be treated, the greatest care must be taken to prevent contractions of joints, and improper adhesions between the raw surfaces. The position ought always to be such as to keep the skin extended. Hence, when the front of the arm and forearm, or the back of the leg and thigh, are burnt, splints are required to keep the limbs extended; but attention must be paid not to allow the joints to become stiff by retaining them too long in one position; they ought to be moved by an attendant from time to time, in order to prevent rigidity, otherwise it might afterwards be both a tedious and difficult matter to restore them to freedom of motion. To prevent raw surfaces from adhering to each other they must be kept separated by placing something between them; for example, to keep the fingers from growing to each other, it is usual either to place strips of adhesive plaster between them, or to keep them extended on a hand-board.

In slight burns no internal treatment is necessary, repose and low diet are sufficient; but in severe cases, when there is shivering, or a tendency to it, and the patient complains of being cold, and has sickness at stomach, a pale countenance and weak pulse, stimulants are indicated; a little warm water, with ten to twenty drops of laudanum, are to be given occasionally; and bottles of hot water, or hot bricks, are to be applied to the feet, until the system recovers from the shock. The warm bath is the best for children, to restore reaction. During the inflammatory stage the diet must be light and confined to vegetables, fruits and farinaceous substances; while the patient may drink freely of cooling drinks.

Dr. John B. C. Guzo recommends pure glycerine, or half water, applied on linen compresses. Has used also glycerine and collodion in a mixture of one part of the former and three of the latter, applied with a camel's hair brush. This

preparation does not scale or crack off from the skin and accommodates itself to muscular action and the movement of the limbs ; and prevents in a great degree the unsightly puckering and contraction which too often interferes with the proper action of joints involved in the accident.

Alcohol in burns and scalds.

The *Chicago Medical Journal* gives the following :

"Saturate a soft piece of fabric with alcohol, lay it over the burn, then cover it with cotton or finely picked oakum. This is the most cleanly dressing that can be adopted. It may be thought that alcohol applied to a burn will produce more pain ; but try it and you will be agreeably surprised to observe how quickly it allays the pain ; subsequently disturb the dressing as little as possible ; wet the dressing occasionally with alcohol, and the result you will find better than by any other method."

I apprehend there are but few households that have not a knowledge of some good remedy to apply in case of burns or scalds ; yet with astonishing indifference to constant liabilities to such accidents, are seldom prepared. When necessity, with its appalling associations, comes suddenly upon the household, as come thus they do, they are totally unprepared ; valuable moments irredeemably lost, difficulties multiplying, dangers threatening, and only too often death steps in rendering all further efforts useless ; then it is we have time for reflection ; then it is we realize in full measure the sadness of those words "it might have been."

In addition to the dressings already enumerated, we may add starch. Soap, a remedy of great service in burns may be found in every home ; make a thick creamy paste with the soap and warm water, spread this on a linen cloth, and after opening the blisters, apply. This may be renewed as often as required. Carbolized oil may be made quickly by mixing an ounce of liquid Carbolic Acid and one pint of sweet oil. Saturate lint or linen pieces and lay over the burned surface. This remedy is one easily made and should be had in every home.

Arnica and Sweet oil or Sweet oil and water well shaken and applied as carbolized oil, is good.

The following formulas are highly recommended as forming preparations of great merit. The difficulty in their use in emergencies is the time required in their preparation. To be available they must be prepared and ready for use.

In the St. Louis Medical and Surgical Journal, Dr. A. U. Buckmeister, Ambulance Surgeon, Brooklyn, L. I., furnishes the following as the treatment he uses in burns, he says: "After trying the various dressings for burns in vogue and all of them proving unsatisfactory, the following, improvised by the writer, has proved efficacious: To equal parts of linseed oil and water, to which lime has been added, making it about three times the strength of the *aqua calcis*, (common lime water) there is placed enough bi-carbonate of soda (common baking soda) to make a thick pastry mass; this mass is applied with loose bandages in the usual way. This dressing has all the advantages of the bi-carbonate of soda alone, and does not adhere to the skin."

We find in the *Concurs Medical* the liniment of Sacrate of lime recommended by M. Constantin Paul. Slacked lime and sugar in equal parts are triturated together. Water is then gradually added until the mixture becomes very liquid. It is then allowed to stand for 48 hours, and then filtered. The solution is evaporated to a thin syrup, and this is mixed in equal parts with a solution of one part of glycerine and three parts of oil. This liniment has the advantage of containing a larger proportion of lime in a given quantity. It is applied to burns, and covered over with raw cotton.—*Ibid*.

Homœopathic treatment external, in these cases is very similar to that which I have already given.

ALCOHOLISM.

As a disease of itself alcoholism has not so been consid-

ered until within a comparatively recent date ; by this we do not wish to be understood as saying that it has not, until of late years existed, for such is not the case ; but as a distinctive malady of the nervous system it has not received special attention.

It affects directly the nervous system and in short is a disease of the nerves, and as such is the parent of many and innumerable diseases. Insomnia, irritability, loss of appetite, and scores of every day complaints so common to people of indoor life and sedentary habits. In fatal cases it may often be found under the name of "heart disease" if the patient be respectable ; if, however, his path be upon poverty's highway, the coroner's jury will say "death from alcoholic poison" and the popular verdict will be "drunkenness" ; though in both cases it was the same.

We shall, in treating of this subject, divide it into two classes, acute and chronic alcoholism.

Acute.

Of this, the former classification, it is necessary to say but little in the present connection. It is not as in the second case the result of long and continued use of alcoholic liquors ; but the immediate result of an excessive consumption thereof by one whose nervous system is in such a condition as to be unable to immediately throw off the effect of the excitement produced by thus suddenly overtaxing the nervous organism. If from this, the patient recovers, the disease is seldom dignified with a name.

Alcohol taken in a large dose or concentrated form may cause death suddenly from shock, and this would belong to this class of cases, and in fact all shocks to the nervous system by the excessive use of alcohol may, we think, properly be called acute alcoholism, though to our knowledge no such classification has heretofore been recognized.

Symptoms, (acute.)

If the quantity of alcoholic liquor consumed be very

great, or if the strength of the liquor be considerable, the symptoms of poisoning may show themselves within two or three minutes after the dose has been taken. When the strength of the alcoholic liquor swallowed has been inconsiderable, or the quantity small, the symptoms may not become manifest for an hour or more. The first effect noticed will be a diffused glow upon the face, arising from the central heat; a feeling of self-satisfaction, a quickening of the pulse, thought becomes more rapid at this stage, but often far from clear; and soon there is slight confusion; memory is impaired, and the spirit is buoyant; a little later he stammers, becomes giddy and his eye-sight is defective; the movement of his limbs is almost automatic. In short the individual is intoxicated—drunk; at length loses the power of speech and motion; insensibility comes on. The countenance is bloated and the pupil of the eye dilated and fixed; the lips livid and the breathing stertorous. In cases where death ensues, its approach is indicated by pallor, cold perspiration, feeble, but quick pulse and muscular relaxation.

Chronic.

The cases which demand the most attention from the medical profession, are those arising from the habitual use of alcoholic liquors, and which we call chronic. The liquor when first taken produces more or less of a shock upon the nervous system, but is the disease which arises rather from the secondary than the first effect of alcoholic liquors. The partaking of alcohol first producing the results, under the first division, after frequent repetition, degenerates from the increased action of the brain, first into constant irritation, then into real inflammation; the coats of the vessels are thickened and lose their transparency, the cerebral texture diminishes in delicacy and elasticity; and effusions of water in small quantities are not uncommon, and the patient suffers from cerebral disease. As in all cases of increased action upon the parts of any of the human system are, and must be, followed by prolonged rest. We find excessive sleep following

in the wake of drunkenness ; and the more frequently extra demands are made upon the nervous system, the louder are the demands for rest, and the nerves become weaker until they are so shattered they can no longer entirely shake off stupor produced by the secondary effect of the liquor. Confusion of thought, delirious excitement, nausea and vomiting and often diarrhœa, follow. Ultimately it induces a state of narcotism, and in fatal cases is sometimes mistaken for poison by administration of opiate poisons ; a mistake which cannot be too carefully guarded against, for so many of the symptoms of opium and alcoholic poison are similar. Yet there are symptoms of a character so dissimilar in the two cases, that a mind free from prejudice and seeking the truth, will, after learning the habits of the patient or diseased as the case is most likely to be, have little or no difficulty in determining between opium and alcoholic poison.

In case of opium poison the patient passes into a stupor or lethargy, (called coma), from which he can not be aroused and dies in that condition. The pupil of the eye is contracted, but in case of death from alcoholic poison, (chronic alcoholism), the patient can readily be aroused by a noise, and after death and just preceding, the pupil of the eye is expanded. So important do we deem this matter that we here insert a diagram or table, prepared by the attorneys Hain and Kenyon in the celebrated murder case of the state of Missouri against Wagoner, showing the individual symptoms of each and those common to both. The mistake should not be made of confounding alcoholism with drunkenness, though in many respects they are the same, yet the former is produced by the use of alcoholic liquor, independent of the poisonous adulteration contained therein, while the latter is, we think, as often due to the adulteration as to the liquor, though in both cases the more impure the liquor, and the greater the adulteration, the more serious is the effect upon the patient.

SYMPTOMS OF ALCOHOLIC AND OPIUM POISONING.

ACUTE ALCOHOLISM.

INDIVIDUAL SYMPTOMS.

Great excitement, face flushed, pupil of eye expanded, confusion of ideas; after death pupils dilated; in extreme cases alcoholic odor.

These symptoms are the result of sudden and large quantities of alcoholic liquor.

CHRONIC ALCOHOLISM.

INDIVIDUAL SYMPTOMS.

Giddiness, stupor, tendency to sleep, roused by noise, vomiting, purging, cerebro-congestion, sudden death by stupor, lungs congested, eyes heavy and pupils expanded, lips livid, muscles flabby and relaxed.

Specially individual.

Inflammation of stomach, dropsy, diabetes, paralysis, liver enlarged, mucus membrane of stomach highly corrugated and skin contracted.

SYMPTOMS COMMON TO AL- COHOLISM AND OPIUM POISON.

Giddiness, tendency to stupor, later coma; can not walk, relaxation of muscles, vomiting, purging, cerebral congestion, sudden death while comatose, lungs congested, brain congested, lips

OPIUM POISON. INDIVIDUAL SYMPTOMS.

Passes into complete lethargy, relaxation of muscles and inability to walk, face pale, pupil contracted; in late stages can not be aroused, deep breathing, swoons, pulse short and full,

livid, convulsions some time before death ; secondary asphyxia, recovery of sensibility, death.

lower jaw drops, convulsions infrequently, in lethargy often sweat, (eliminated thereby), often insensible in fifteen minutes in cases of laudanum, but in cases of solid opium, conscious for an hour or two in rare cases. Death—pupil of eye contracted, stomach in a healthy state, strong smell of opium if present in the stomach in larger quantities.

Conditions and climate.

While there is doubtless much truth in the idea so common at the present day that "the error of drinking to excess depends much upon the climate and temperature of the country, of the persons who indulge," we do not believe that climate and temperature have so much to do with the growth of the disease under discussion as the habits and life of the patient. It has been said that an amount of liquor which would have no perceptible effect upon a person in a cold climate would result in the dangerous intoxication of an individual in a warmer climate. With this theory we cannot agree. We find the percentage of alcohol contained in various liquors of different countries and localities varying and containing ingredients of different character, hence it is difficult to tell the exact effect that climate may have upon the growth of alcoholism. The habits and condition of individuals have very much to do with both, the immediate and continued influence alcohol obtains over the system. Montesque says: "A German drinks through custom, founded upon constitutional necessity," and a "Spaniard through choice, or out of a mere wantonness of luxury." In the former case we see the individual become happy, but not wicked, and no perceptible ill effect follows, while on the other hand the Spaniard becomes quarrelsome and vicious. On this account, the eminent

writer sees and accounts for the difference solely upon the climate, forgetting that the two seldom drink the same liquor, and that their modes of life are entirely at variance.

Living in the same climate and of the same nationality are two persons, one uses alcohol and soon becomes diseased and dies from its effects ; the other possessing greater nervous vital powers, uses it to a greater extent and lives, and enjoys the best of health.

It would be the height of folly to suppose that the professional more in his office could escape from alcoholism and use the liquor to the same extent of the muscular and ever active cowboy on the plain. The more the patient exercises in the open air, the less potential is the use of alcoholic liquor to fasten its deadly effects upon the system. We know of no climate where this disease does not prevail, and so far as we are able to learn, it is unassurably in proportion to the percentage of alcohol consumed.

Connection with other diseases.

As we have stated chronic alcoholism is a disease of the nervous system, and the result of long continued use of alcoholic liquor, and the number of diseases arising therefrom are by far, more numerous than we are apt to think. We will often hear that A. B. died very suddenly of heart disease, fatty degeneration, apoplexy, or by some one of the many diseases by which sudden death may be accounted for, where if the real facts were made known, we would understand that he died from the effects of alcoholic poison. But that would never do ; polite society would be shocked, and the physician would lose his practice, if he possessed sufficient temerity to correctly report the facts of the case. Thus it is that death is attributed to other than the real cause, and youth is encouraged in the moderate use of liquor, when it would have spurned the proffered glass, did it but realize that an assassin, not heart disease, did the deadly work, and been thus protected, because of the cloak society compells honesty to assume. Moderate drinking often fastens disease upon the system and

in the earliest stages the patient becomes nervous, and instead of stopping the use of alcohol, he is apt to resort oftener to the exhilarating effect of larger and stronger doses, all of which is a mistake, and soon he or she will cease to follow the ordinary vocations of life without first resorting to stimulants. Then comes a general debility of the body and mind, nerveousness without the ability to sleep, blindness and headache. Here let common sense be the patient's physician, for his doctor will not always tell his patient's disease, even if he knows, and he may recover, for of all remedies the best is to cease drinking, and it may be necessary to do so gradually, and so far as possible live and exercise in the open air. The following article from a well known physician shows the pernicious effect of one popular remedy for drunkenness :

During five years I have read over a hundred cases of death from chloral, some thirty or forty of these in this city alone ; yet there are prominent physicians here who, instead of describing less dangerous but just as effectual remedies, prefer to temporarily kill (that is what chloral does) the ideational centres of their patients' brains. In an institution here—an institution which receives a large amount of money from the city—chloral is used in treating cases of dipsomania ; and yet for years past chloral has been placed amongst the list of obsolescent medical preparations. No well-informed physician ought or will use it, for the reason that it is not only a dangerous medicament, but also one which may inflict a worse disease on the patient than that for which it is given.

It is a German discovery, dating back some twenty or more years, and was first introduced into English practice by the celebrated scientist, Dr. B. W. Richardson, who, however, has lived to see his error and its evils ; and, like a true man who has committed a folly and repents it, has publicly condemned its use in an able article in the *Contemporary Review*, in which he uses the following language with reference to it : " It is the regret of my life that I ever took part in the introduction of such a pernicious drug."

Yet, despite this evidence of one of the ablest men living ;

despite the fact that chloral has destroyed thousands of people, despite the fact that all scientific men know it to be devoid of any curative properties whatever, its only action being to paralyze and deaden, it is still administered in the institution referred to as a remedy for drunkenness !

I have had in my practice large numbers of people who were victims of chloral and opium, and I have yet to find one who has not been made such by either the ignorance or willful maliciousness of that class of medical men who desire to temporarily quiet the nerves of their restless patients, without caring a jot whether death does or does not ensue twenty-four hours afterward. Respectfully, etc.

R. D'UNGER, M. D.

Enough has been said concerning the relation which exists between the chronic alcoholism and other diseases, but we wish to quote the opinion of a psychological authority which illustrates in variety some of the points already so briefly alluded to. "That intoxication," says Greisinger, "when carried to a certain extent as a dreamy condition with numerous hallucinations and illusions really resembles insanity, is easily understood. Sometimes we see individuals who after taking of a relatively small quantity of spirits, and without being in a state of deep intoxication, but retaining fully their consciousness, present a great tendency to commit very extravagant, noisy and foolish acts ; a circumstance which may be truly considered as a symptom of predisposition to mental disease.

Moreover there occur in drunkards sudden convulsive states which resemble epileptic attacks, and which are sometimes followed by a condition of forgetfulness and tranquil delirium ; and at other times by outbreaks of furious delirium, which has been termed, the convulsive form of intoxication. The habitual drunkard, in whom the habit is already far advanced presents also, even when he is not in a state of intoxication, many signs which indicate the existance of an advancing chronic disease of the brain, and which make him

closely resemble the mentally diseased. Indeed the condition may gradually pass into insanity, and particularly into dementia ; and these are constantly found in the brains of habitual drunkards, as in many of the insane, the result of passive congestion, chronic opacities, and thickening of the cerebral membranes. The appetite acquired by habit is so powerful, and the ideas which might oppose it are so weak, and the will has become so paralyzed, that he even, though he is aware that he renders himself despised and contemptible ; undermines his constitution ; and disturbs his domestic happiness ; ruins his business ; and every day postpones the good resolution which he perhaps has made.

The craving, the dizziness, the dullness of the senses, the muscular feebleness, the stomach complaints from which he suffers, are each time he partakes, alleviated for the moment, and it may perhaps be partly owing to the fact that these disorders require each day to be remedied, that drunkenness is often so inveterate. The above, though not written upon the subject under consideration, we deem well worthy of consideration. The brief outline in this chapter together with the table is sufficient to enable the careful reader to diagnose a case of alcoholism as readily as though he had read volumes upon the subject.

DISEASES AND THEIR TREATMENT.

AIR-PASSAGES.

The upper air-passages, their diseases and treatment.

In the classification and arrangement of diseases, and subsequently their treatment, I have elected, for the purpose of simplifying the work, to divide diseases of the respiratory organs into two local subdivisions ; diseases of the upper air passages, and diseases of the chest. Some among the most important diseases affecting the respiratory organs, are seated in these upper air passages ; these passages consist of the nose, pharynx, larynx and trachea, and are above the chest. An eminent medical writer on this subject says : "Certain anatomical and physiological points pertaining to these passages are to be kept in mind with a view to a clear apprehension of the diseases in this situation."

The *Nose* is an organ of special sense, as well as a part of the respiratory apparatus, its cavities are quiet extensive, extending from their anterior openings into the throat, and from the roof of the mouth upward to the superior portion of the external nose. These cavities are lined with a mucus or pe-tuitary membrane, classified in these parts as the Schniderian, taking the name of its discoverer.

The *Pharynx* is the membranous sack, immediately behind the tongue, and forms the principal part of what is generally spoken of as the throat, forming part of both the air passage and the passage for the food. If the tongue is depressed and we look into the mouth, we will notice a constriction at the posterior part of the tongue called

the *fauces*, and situated at this point are two almond shaped glands—the *tonsils*. Hanging from the roof of the mouth at this point is the *soft palate*, with a smaller depending portion the *uvula*, and posterior to and below the tongue, a reddish substance projecting upwards—the *epiglottis*, a leaf shaped cartilage,—the first portion of the *larynx*. Behind all these we observe a somewhat large cavernous space, which is the *pharynx*. These various parts assist in the acts of respiration and modulation of the human voice. The *larynx* is situated immediately below the tongue, and not only forms a part of the air passages, but is especially interesting as the organ of voice. It is composed of a frame work of seven cartilages joined together by as perfect joints as the knee or elbow. These cartilages are moved by several small muscles, which varies the size and form of the passage through it. If we examine its cavity, we will find it divided by two prominent elevations of the mucous membrane on each side, which are caused by two bands of fibrous tissues that pass from behind forward and are called the vocal cords. The cartilages of the larynx and muscles are so arranged that these cords can be made tense or relaxed, brought near together to diminish the aperture, or drawn apart to relax it.

Hence the great range of the human voice commanding as it does, two or three octaves. The voice has nine perfect tones, however, out of these nine tones we have no less than 17,592,044,415 different sounds, thus; fourteen different muscles, alone or together, produce 6,383,530; indirect muscles 173,741,823; and altogether produce the almost incredible number first given. Were a sound uttered each consecutive second it would take $557\frac{1}{2}$ years to make all the different noises capable of being uttered by these organs through the mouth. This would give $12\frac{1}{2}$ sounds to each of the 1,400,000,000, of the earth's population, and perhaps explain how it may be possible that no two voices sound exactly alike. The *trachea* is the continuation of the air-passage downward from the larynx. It is a cylindrical tube about one inch in diameter, formed of a skeleton of cartilaginous rings, cov-

ered by fibrous tissue, (a thread-like structure), and lined by mucous membrane. These rings do not come together by $\frac{1}{4}$ to $\frac{1}{3}$ of an inch behind, as is also the case with the bronchial tubes; the interspace being filled by muscular fibre, the diameter of the tubes can be greatly lessened as is the case in the act of sneezing, and the cause of the difficult breathing in asthma.

As you study the various diseases, to which these parts are subject, you will realize the advantage to be derived in the somewhat lengthened anatomical statement I have given of them.

Inflammation of the nose.

This trouble may have its origin from various causes. We may have an inflammation of the septum, (middle division), of the nose, brought about by injury to the parts, terminating, at times, in a painful abscess. In these cases the abscess should be opened and the affected parts cleansed two or three times daily with warm soap-suds, or warm water to which ten (10) to twenty (20) drops of liquid carbolic acid has been added to each pint of water.

Chronic inflammation of the inside of the nose, particularly of the septum, may have its origin in secondary or tertiary syphilis, or a very similar condition in appearance may have its origin in an individual of scrofulous tendencies; the results, aside from the sufferings of the patient, are often times exceedingly unpleasant, the whole nasal septum is frequently eaten away, thereby greatly deforming the feature. This condition, whenever presenting, should, at an early moment, receive prompt treatment at the hands of an intelligent physician. Another peculiar form of inflammation of the lining membrane of the nose bears great likeness to one of the forms of an eruption of the skin known as *eczema*. It is very annoying and quite difficult, when chronic, to effect a cure. A preparation of oxide of zinc, one drachm; glycerine, two drachms; a solution of sub-acetate of lead, one drachm; and lime water, four ounces; may be applied two

or three times daily; taking care to keep the parts well cleansed with castile soap and warm water. Mild aperient salines, if needed, should be given occasionally.

For constitutional treatment, the following is very excellent; if the outbreak is favored by debility:

Quinine, one (1) grain; reduced iron, one (1) to two (2) grains; extract of nux vomica, $\frac{1}{8}$ to $\frac{1}{4}$ grain; extract of chamomile, one (1) grain; this quantity to be made into one pill. Two or three of these should be taken daily; continuing until all trace of the disease has disappeared.

Homœopathic treatment.

In practice we sometimes meet a condition of the petuitary membrane lining the nose, which bear marked characteristics of an *eczematous* condition of the skin. This outbreak, not always confined to the internal, extends to the external nose and the lips, presenting a typical redness, quickly followed by the formation of little blisters which break and discharge a thin watery matter that, drying, forms thin yellow crusts. The disease is a very obstinate one, running a slow course. *Murcurious*, or *kali bichromicum*. In the more obstinate cases use *graphites*. These remedies should be persisted in until cure is effected.

Submucous infiltration of the vomer, or lateral part of the middle bone of the nose.

This gives rise to a puffy appearance of the membrane covering the bone, the puff presenting a whitish color, markedly distinct from the surrounding parts. The affection is usually symmetrical, but not infrequently exists to a greater extent upon one side than upon another. The treatment consists in tearing away the portions of the protrusion within reach and cauterizing the parts. This may have to be repeated a number of times, as the trouble is a very difficult one to eradicate.

Tumors of the nose.

Of these there are a variety. I will confine myself to those of the more common forms, those of a mucus growth. One of these, *polypi*, is a simple fungoid growth of the Schniderian membrane, the out-growth of chronic catarrh; the other an idiopathic, or original growth, with vessels and cellular tissue. These tumors often prove quite troublesome, closing the nostrils to that degree, as to greatly impede respiration. When pedunculated, with small attachment, they may be torn away and the parts washed with cold water until the bleeding stops. The following have been very highly recommended as curative in these cases. A snuff—of powdered wild cabbage, or the juice of the root, the polypus, will fall off in three days; but to effect a radical cure, the remedy should be continued several days.

Homœopathic treatment.

Calcaria carbonica, in the higher attenuations; also for all polypoid excrescences of the Schniderian membrane.

Nose bleed (epistaxis).

Is ordinarily attended with but little danger; in some cases it proves beneficial to the patient. It may occur either *traumatically*, that is through violence, such as sneezing, snuffing irritating substances up the nose, by a blow, by inflammation, congestion of the parts, or ulceration of the lining membrane of the nose; or *idiopathically*, it occurs among children, and especially in boys about the age of puberty, and in girls in vicarious menstruation. In adults, particularly of advanced years, it is indicative of an over distended or obstructed condition of the venous system of the brain, arising from Bright's, or from heart disease. It occurs in fevers, as a relief in determination of blood to the head, from over indulgent living, anger, constipation, excessive use of intoxicating liquors, etc. There are many methods of treating nose bleed; among others, exposure to cold air, bathing the head, face, neck, hands and wrists in cold water;

bathing hands and feet in warm water containing powdered mustard ; placing a large key to the back of the neck is an old, familiar and often tried remedy ; drawing cold water up the nostrils is another ; plugging the nose with lint saturated with water and vinegar ; ice-cold compresses to forehead, temples or nose. Powdered gum-arabic blown up the nostrils is a very efficient remedy ; likewise a solution of tannin or alum, or both, either in solution or powder. Persulphate of iron (Monsel's salts) blown up through a tube, in the form of a powder, or a ten, or twenty per cent. solution, or even stronger, may be blown up the nostril. Grated, dried, salt beef, or lint dipped in a solution of sulphate of zinc and germanium, and passed up the nostrils has been known to suppress some very severe cases. Where a strong astringent is indicated, and Monsel's salts can not be obtained, the following comes well recommended : Alum, one (1) drachm ; sub-nitrate of bismuth and nitrate of potassium, each four (4) drachms. First remove all clots, then blow the powder up the nostril.

The *Cincinnati Clinic* reported a case of a habitual drinker with whom bleeding at the nose occurred every third day, that was effectually cured by the application of a fly blister over the region of the liver. Where nose bleed occurs in children from picking at the nose, some means should be adopted to prevent the act. In obstinate cases it may become necessary to plug the nose from behind, to accomplish this, provide yourself with a small flexible catheter ; pass a waxed silk or hemp thread or cord through the eye of the instrument, pass this carefully along the floor of the nose until upon opening the mouth the end may be seen, then with a blunt hook, or some instrument, catch the free end of the cord and pull it forward out of the mouth, to this, at some distance from the end, tie a small roll of dry lint, or sponge, with the fingers place this behind the palate, withdraw the catheter, with it the end of the cord attached thereto ; detach the cord from the catheter, and by pulling upon the end of the cord, coming out of the mouth into the posterior part of

the nose ; this may be made less difficult by manipulating the pledgets with the fingers as they are being drawn up into the nose. These, as indeed all plugs in the nostrils, should not be permitted to remain longer than forty-eight hours at farthest ; half that time is best. Where they have been permitted to remain too long, the patient has been carried away by a low form of fever,—blood poisoning,—that no form of medication seemed able to control. The two ends of the cord, the one issuing from the nose, the other from the mouth, should be brought together and tied at a convenient length. In removing, it would be wise not to cut and remove the cord but withdraw the plug carefully. If the bleeding renews, prepare a fresh cord, attach it to the one just used and draw the end through the nostril, remove the old cord, attach a pledget to the new and proceed as before. A more simple method, though one not so effectual, I think, is this ; in observing the patient closely, you will detect a slight intermittent motion of the soft part of the nose on the side from which the blood is flowing, even though you cannot see it, it may be felt ; over this branch of the facial artery press with the finger and the hemorrhage will be checked. A vigorous motion of the jaw, as in eating, is a very serviceable remedy : give a child a wad of paper and set its jaws in motion. A piece of brown paper folded and placed between the upper lip and gum will in many cases stop the bleeding. I have in a number of instances used successfully the already named local remedies, Alum, or Tannin, or Monsel's salts, in some cases I gave *veratrum viride* internally, in connection with the remedies used in the nose, until the pulse was greatly reduced, and bleeding ceased ; this should be used with caution ; at other times in conjunction with the local remedies I gave *Fl. Ext. of Ergot*, ten to twenty drops every quarter to half an hour, until bleeding was fully controlled ; then from four to six times, for the first twenty four hours thereafter, half a teaspoonful, repeating first named doses on the slightest indication of a return. I have found ergot a very satisfactory and effectual remedy. It *must not* be given, how-

ever, to pregnant women. Also in obstinate cases, subacetate of lead, twelve (12) parts; to opium one (1) part may be given in two grain doses, in the form of a pill, every two hours.

Homœopathic Treatment.

Homœopathic Treatment consists, in addition to the above local measures, internally.

When it is caused by a fall, give arnica; when it results from congestion of blood to the head, give aconite, belladonna or bryonia. When it arises from over exertion, give rhus. If it is over-heating, lie quietly, with the head elevated, and take bryonia and aconite in alternation (turn about) every hour or half hour; if it occurs at night, give rhus, bryonia or belladonna alternately, every evening a dose; if in the morning, nux vomica, or bryonia; if it occurs during a cold in the head, give pulsatilla and arsenic every morning and evening, a dose of each alternately; if it occurs in children who are troubled with worms, give china and mercury; in persons who are weak, or are rendered so from loss of blood from the nose, give china, a dose every half hour, or hour, or ferrum, if china does not relieve. Clots of blood which form in the nose, should not be removed until the bleeding is thoroughly stopped. Lint pressed tightly under the upper lip so as to compress the artery will frequently arrest the severest bleeding.

NASAL CATARRH.

Nasal Catarrh—(Rhinitis) from *Rhin*—the nose and *Itis*, a suffix denoting inflammation. *Catarrh* is derived from two greek words, signifying down, and I flow. The term catarrh is a somewhat vague one without the use of its technical name, indicating its location, from the fact that its application generally denotes inflammation of mucous membranes attended with increased secretions. By the technical term Rhinitis we are locally limited to the inflammatory affections of the upper part of the air passages, resulting from cold, at-

tended by a copious discharge from the nostrils. Symptoms of this trouble are manifest, immediately subsequent to an exposure to cold and damp. There is a sense of indisposition, of chilliness, of cold down the spine, weighty feeling in the forehead, a fullness at the base of the nose and between the eyes, headache, a dryness in the nose and throat. Succeeding these feeling, we have a thin irritating, pungent discharge from the nostrils; the eyes are watery, face pains, throat sore, hoarseness, mentally and physically there is a disinclination to exertion. It also follows excessive smoking. Those of a scrofulous constitution are particularly liable. When the condition is confined to one nostril, we have pain on the corresponding temple, eye brow and ball of the eye, and side of the face. As the acute stage passes and the chronic comes on, the mucus discharge presents, the indisposition becomes more general and fixed, affecting the voice, the sense of smell, in time obliterating it entirely, taste is impaired, appetite affected, hearing lost, eruptions, same manner as chlorate of potash. Inhaling at intervals for five minutes, four or five times daily, tinc. iodine and chloroform, equal parts. Provide yourself with a thin glass vial, one that will readily be warmed in the hand, place in this a teaspoonful of the mixture of iodine and chloroform, inhale from this bottle until its strength is exhausted; then empty and replenish. The warmth of the hand rendering the liquid more volatile. This simple remedy cured my wife of a very obstinate case of Rhinitis, of sixteen years standing, restoring her sense of smell after she had thought it lost beyond recovery. Tinc. of iodine and glycerine, boracic acid and glycerine applied with a camels hair pencil as high up the nostril as can be reached. Iodine, one grain; iodide of potash, carbolic acid, each two grains; glycerine two ounces; applied twice a week by means of a pledget of cotton or sponge and nasal sponge holder, aids greatly in lessening the discharge; chlorate of potash internally is excellent in its effects. Dr. Ferrier, the local application of the following in the form of a snuff—hydrochlorate of morphia, two (2) grains; subnitrate of bismuth six (6) drachms;

gumarabic in powder, two (2) drachms; one fourth to one half of this to be snuffed up the nostril in the course of twenty-four hours.

Dr. Emma Nichols of Chicago recommends that the following be persisted in: iodine crystals, ten (10) grains; chloroform, ten (10) ounces. Night and morning clear the head thoroughly, then take three deep snuffs from the bottle, waiting a moment between each. Dr. Goodeville of New York, the following: iodoform and camphor, each, one (1) drachm; bismuth, sub nitrate and nitrate of potash, each $1\frac{1}{2}$ ounce; as an excellent antiseptic; where discharge is fetid, or where ulceration is present, or an excessive amount of granulation. The camphor masks the smell of the iodoform. The affected parts are more readily accessible to impalpable powders than other forms of drugs. Care should be that their medicinal integrity is preserved, night air, smoking and stimulating drinks should be strictly eschewed.

The following rules, in the *Medical and Surgical Reporter*, by Dr. Andrew H. Smith, are very comprehensive.

1. Keep the parts clean.
2. Remove all sources of irritation resulting from occupation, climate, residence, etc.
3. Enforce attention to Hygiene and the general health.
4. If there is obstruction to nasal breathing, remove the obstruction.
5. If there is ulceration, use strictly local applications with a view to healing.
6. Cease treatment the moment there is no longer a definite indication for it.

Homœopathic Treatment.

Aconite.—Is always proper in the beginning of a cold, even if there is but slight fever, also when the discharge from the nose is suppressed and is followed by a headache. Camphor is also good for the same symptoms; if there is nothing but the ordinary spirits of camphor convenient, one or two drops should be put on a lump of sugar, and this dissolved in

a tumbler half full of water, and give according to directions.

Arsenicum.—Not much fever, heat or thirst, patient restless, particularly at night, drinks often and but little at a time discharge acrid and corrosive, burning heat of the nose, the discharge produces a swelling of the adjacent parts, redness and watering of the eyes. Ipecac may be given if arsenic does not relieve.

Nux vomica.—Should be given when there is obstruction, with little, if any running from the nose, but if there is running, it is in the morning, with dryness at night, mouth dry and parched without much thirst, constipation, fever and chills alternate in the evening.

Chamomilla.—When the difficulty is caused by checked perspiration, shivering, with heat and thirst, heaviness of the head, swelling of the face, and redness of the cheek, redness and inflammation of the eyes.

Mercury.—Constant sneezing, soreness of the nose, with constant watery discharge, which produces soreness of the part with which it comes in contact, swelling and redness of of the nose, tearing headache, pains in the bones of the nose, catarrh worse in the morning, offensive smell.

Belladonna.—Swelling, redness and burning of the nose, pain in the nose, aggravated by touching; throbbing pain in the head, aggravated by motion.

Hepar sulphur.—Particularly when but one nostril is affected, burning headache, especially about the root of the nose, which is made worse by the slightest movement, catarrh renewed by every breath of wind. Hepar should be given, especially when mercury affords but little relief.

Pulsatilla.—Thick, green or yellowish discharge through the nose, which is very offensive, heaviness and confusion in the head; frequently towards night and in the warmth of the room, the obstruction of the nose increases, pain in half of the head, frequent sneezing, painful pressure at the root of the nose, flying pains from place to place, roaring in the ears.

Euphrasia.—Especially when the eyes are irritated and watery.

Lycopodium.—Obstruction of the nose, especially at night, sense of smell very acute, tearing pains in the forehead, dryness of the mouth, without thirst.

Silicea.—Chronic catarrh, with severe pains in the bones of the nose. Tartar emetic may be given in some cases, when there is sneezing, chilliness, loss of taste and smell; some times when the secretions become suppressed, or before it has commenced and the nose is hot and dry, a little almond eye or cold cream may be applied to the inside of the nose with a feather; or a vapor of hot water may be allowed to pass up the nostril, which will be found to afford some relief.

CLERGYMAN'S SORE THROAT. (*Dysphonia clericorum*.) (*Follicular laryngitis*.)

Clergyman's sore throat, is frequently a nervous complaint, at least in its early stages.

Subsequently, however, a series of morbid changes takes place, such as congestion, inflammation, or relaxation of the mucous membrane, enlargement of the tonsils, elongation of the uvula, and irritation, inflammation, morbid deposit, and ulceration of mucous follicles.

Cause.

So many causes have been given as the source of this disease, that there is wide diversity of opinion. Speaking too loud, high stiffened stocks, a strain of voice on Sunday to which it was not accustomed to on other days, labor, anxiety, to the unnatural tone of voice called the "pulpit tone" to not wearing the beard, and many other causes which different writers advocate. The most rational theory seems to be that of Dr. W. W. Hall, as follows: "The voice organs are always heated and wearied by public speaking, then going out into the cold air too soon, they are cooled off, are chilled, then comes the reaction of fever and inflammation, which relieves itself by an extra secretion of a viscid phlegm; this adheres to the delicate vocal chords, preventing them from vibrating freely, as glue on a fiddle string;

nature seems to know the cause and there is an instinctive effort to hawk or hem, or clear it away, and if successful, the voice is clear enough for awhile until a re-accumulation of phlegm takes place, to be hemmed away as before. These coolings off being frequently repeated, a habit of hemming is set up, to the very great annoyance of both speaker and hearers. But the real cause is far back of this. If there had been sufficient vigor, of circulation, of health, the parts would not have been so easily cooled and chilled; this want of vigor in the circulation arose from want of vigorous, healthy digestion, resulting in poor bad blood. This want of vigorous digestion comes from two causes—eating too much, exercising too little; hence a European tour cures clergyman's sore throat, because there is a great deal of exercise and either a very little to eat, or the food is prepared in such a way that much cannot be eaten."

Treatment.

Chili vinegar diluted with water makes an excellent gargle. In its early stages, when merely a nervous affection, the treatment must consist in the use of tonics, especially iron and quinine, cold shower baths or sea-bathing, and temporary change of scenes and occupation. When the disease is further advanced, a combination of internal, with local remedies will be necessary. Iodide of potassium, iodide of iron, iodide of zinc, tonics and opiates, will prove of advantage; but the best internal remedy, according to my experience, is the combination iodide of potassa with sarsaparilla and fever syrup.

The local treatment consists of the application of nitrate of silver (2 to 4 scruples to the ounce of distilled water) to the diseased parts.

When the tonsils remain enlarged or indurated various astringent gargles have been recommended, as also inhalations of solid nitrate of silver and iodine have been employed.

But is much easier to prevent the formation of the disease

than to cure it ; which may easily be done by observing the precaution of avoiding any unnecessary strain upon the vocal organs. If the voice be made to keep within the limits of an octave of music, no injury will be sustained, however loud and strong the tone may be. But if the speaker cannot retain sufficient presence of mind to control his voice within proper limits, or to regulate his tones by the musical scale, and should find on ceasing that some uneasiness had been created about the throat, he should not adopt the absurd practice of enveloping his neck with a large handkerchief, or shawl, and by sweating, produce still further debility and relaxation, as this will inevitably invite congestion, which will easily be converted into irritation or inflammation ; but on the contrary let him at once apply cold water to the throat, and then rub it with a dry cloth until some redness is produced. If these simple directions are followed, no fear need be entertained of this very annoying disease, which is yearly driving from the pulpit many of its brightest ornaments and most efficient laborers. In cases which have become chronic and the irritation excessive—relief has been found in antiseptic inhalations of Peruvian balsam. Ten drops of a mixture, consisting of two parts Peruvian balsam to one of spirit of wine, are added to boiling water, and the vapor which rises is inhaled for some time ; this is done three or four times a day.

Homœopathic treatment.

Dr. Laurie says : “ Public speakers of all kinds should endeavor to keep the general health good ; should avoid taking heavy and hearty meals after any lengthened exertion of the voice ; should be careful not to speak, sing or preach when the throat is at all affected ; should cultivate the utmost naturalness in the use of the voice ; should introduce every possible variation ; should throw the voice well out from the chest, and make full use of all the organs of speech, especially the lips, tongue and teeth. The cultivation and management of the voice constitute a thorough art, however, very

much neglected ; hence, for one reason, the so-called “Clergyman’s sore throat,” arising from continuous and undue strain, in a vitiated atmosphere, conjoined with an enervated and debilitated state of health.

Treatment.

Complete rest from public speaking ; change of air and scene, travel, moderate out door exercise ; cold bathing of the throat and chest, and the tepid compress every night.

Kali bichromicum.—Relaxed uvula and inflamed palate, simply without any uneasiness ; or with constant irritation as of a hair adhering to the false palate or back of the throat,—this sensation is not relieved either by eating or drinking— or smarting and tingling in the fauces and heat down the chest ; accumulation of tough, stringy mucus, requiring some effort to dislodge it. A dose every three hours. Increased relief is afforded if this and any other medicine, for a similar condition of throat, are applied as atomized fluids by a spray tube directly to the inside of the throat.

Causticum.—Frequent hawking up of mucus, burning sensation in the throat, fauces and about the uvula without thirst ; the throat feels sore, scraped or torn ; constant disposition to swallow ; frequent sense of tightness in the throat, or of coldness mounting upwards, and extending over the palate. A dose every three hours.

Carbo vegetabilis.—Violent scraping and tingling in the throat and fauces, only relieved by clearing the throat for a short time ; darting pains in the throat. A dose every three hours.

Phytolacca.—Throat sore ; worse on the right side, sensation as a ball of hot iron in the fauces, or as if the wind pipe were being forcibly grasped ; hoarseness ; constant hawking of mucus. A dose every three hours.

Dachesis.—Bright redness of the throat ; cough most troublesome in the open air and after speaking, which makes the throat feel very dry. A dose every four hours.

For stridulous, spasmodic and pseudo-membranous laryngitis, see *croup*.

ABDOMEN.

THE ABDOMEN, ITS DISEASES AND THEIR TREATMENT.

HEARTBURN, *or acidity of the stomach (cardialgia).*

Is a hot scalding sensation usually felt at the upper end of the stomach, but sometimes extending over the entire abdomen, and is frequently attended with the ejecting of a very acid fluid which produces a hot, burning feeling, from the stomach to the mouth, as the fluid is ejected. Heartburn while not attended with danger, is frequently very difficult to cure. This excessive acidity occurs from various causes. The gastric juice may be secreted in great quantities, or it may contain an unnatural amount of acid; this is generally due to the decomposition of food, and to a process of fermentation dependent rather upon an insufficient amount of gastric juice than upon its excess. In this case it manifests itself after meals. It sometimes accompanies an organic disease of the liver. It constantly accompanies chronic catarrhal gastritis, the mucus enclosing particles of food that remain in the stomach and that are decomposing. These particles of food immediately set up fermentation in the food taken at each successive meal. An excessive use of oily diet often produces heart-burn.

It is rarely met with before puberty or in old age; is more frequent in females than in males, quite frequently in pregnant females, probably in the latter owing to the fact that the stomach is so displaced that it cannot properly expel its contents.

Treatment.

Diet should be carefully attended to. Alcoholic stimulants, tobacco, either smoking or chewing; food containing much

sugar, starch or fat should be avoided. Alkalies, chalk, magnesia, and alkaline waters are used for its relief.

Dr. J. F. Esher, of Lowden, Iowa, highly recommends the following acid formula :

“ Nitro-hydrochloric acid, 1 drachm.
 Distilled water,
 Lemon syrup, each, 2 ounces.

Take a teaspoonful in sufficient water to make it agreeable, thirty or forty minutes before each meal, the patient being strictly enjoined to eat slowly and to abstain from drink of any kind till after having finished the meal.”

Baking soda $\frac{1}{2}$ to 1 teaspoonful dissolved in half a glass of water, or a like quantity of magnesia in a little water, in mild cases often relieves.

In more stubborn cases use :

Sub nitrate of bismuth, grs. 30.
 Ext. of henbane, grs. 30.
 Mix, and make into twelve (12) pills.

Take one, morning and noon, and two at bed time. Continue taking for a week or ten days, avoiding stimulants, subsisting, the while, on low diet ; or give

Sub-nitrate of bismuth, grs. 2.
 Pulverized rhubarb, grs. 2.
 Magnesia, grs. 5.

To be given at a dose, and repeated twice or thrice in the course of the day.

Compound tinc. of benzoin, one (1) drachm, mixed with a mucilage of gum arabic and water is in great favor with some.

The eminent Dr. Tagert of Chicago recommends the following very highly, as a corrective, in neutralizing the excess of acid in the stomach.

Salicylate of soda,	. . .	2 drachms.
Water,	. . . . .	15 tablespoonsful.

Take a tablespoonful every five hours.

A very simple remedy is one teaspoonful of powdered charcoal, mixed with molasses and given for three successive mornings; omit two mornings, then give a tablespoonful two consecutive mornings; followed by a cathartic of Seidlitz powder, to which had been added a tablespoonful of Rochelle salts.

Two eminent physicians, Cullen, and Mason Good, have spoken in high terms of the internal use of *castile soap*, which may be taken in combination with *rhubarb*, as follows:

Castile soap, two (2) drachms,
 Rhubarb, and
 Ipecacuan, in powder of each two scruples.

Mix with mucilage, and divide into forty pills; two of which may be taken twice a day.

The state of the bowels must continue to be an object of attention as long as this affection exists. The most suitable laxatives are those which produce a feeling of warmth in the stomach.

Homœopathic treatment.

As heartburn is a mere symptom emanating from derangement of the stomach, the articles on dyspepsia and its subordinate affections should be considered, in order to define the treatment. The following are the medicines which will most frequently meet the requirements of the case.

Nux vomica, *pulsatilla*, *sulphur calcarea*, *lycopodium*—are most frequently required both in casual and chronic cases; but in order to determine the selection, consult the article on “Dyspepsia,” and the characteristic effects in respect of each. A dose every three hours. In chronic cases, night and morning, until positive amelioration or change.

Carbo veg. china, acid, sulph.—One or more will occasionally be required ; and the indication for each will be found in the articles on “Dyspepsia,” which should be carefully consulted. A dose every three hours. In chronic cases night and morning.

DYSPEPSIA.

Dyspepsia has been defined as the remorse of a guilty stomach. Is this slander, or is it true? *Cleaveland* in his “Medical Lexicon” defines it as: “Difficult digestion; generic name of indigestion, whether functional or organic.” *Dunglison*, the Webster of the profession, defines it as: “A state of the stomach in which its functions are disturbed, without the presence of other diseases, or, if others are present, they are of minor importance. Its symptoms are loss of appetite, nausea, heartburn, acrid or fetid eructations, a sense of weight or fullness in the stomach, etc. It is usually dependent upon irregularity of living.” *Quain*, in treating on the function of digestion says: “Any interference with the due performance of the several components of the function will lead to indigestion.” In the light of the evidence thus far adduced, a clear case of slander could hardly be made out, and yet, possibly, there is a degree of truth in the indictment ; let us see. In the stomach are nerves, muscles, vessels, glands, flesh and blood. In the harmony of their action is digestion—in discord, indigestion.

This leading disease of the stomach is from original errors in itself, or from error in the food or drinks, or from error in the outlying organs, or from heredity, or from bad habits of the body, or from bad habits of the mind, or from error in the environment.

The breaking down and wearing out process is in overloading the blood with debris, and unless this waste is eliminated or thrown off rapidly, and effectually, rank and multiplied poisons will flood the circulation, invade and derange the stomach. Especially so is it with that of the liver and bowels. The steady downward flow from the liver and in-

testines, is a leading condition of healthy gastric action. The erect attitude is another essential condition, for it gives the diaphragm that sweep of action so helpful in respiration, circulation and digestion. Pent up uterine, renal, and cutaneous ejections are obnoxious to digestion. Food and drinks faulty in quantity, quality, time and manner of reception, threaten us as a people. Heredity is no stranger in disorders of indigestion. And the surroundings, so often unheeded, is a prolific cause of indigestion. In mal-assimilation,—the ill conversion of food into living organism,—the stomach shares with the other organs of the body in the pervading waste. So, again, it is impaired by every general disease.

Altered sensibility refer to its nerves ; altered motion to its muscles ; altered temperature to its vessels ; altered solvents to its glands ; altered nutrition to its tissues, and altered blood to the constructive or retrogressive organs. In dyspepsia the cause is in the environment, or in the food, or drink, or in the outlying organs, but if not in either, then in the stomach itself is the criminal. After the exclusion of the intermediate causes, put irritability, motion, temperature, secretion and nutrition of the stomach, under examination.

There are degrees in this trouble. A dyspepsia, a mal-pepsia and an aepsia. The stools will determine the last ; an annoyance at the stomach will determine the first, and acidity, putrescency, flatulency, weight, belchings, nausea, want of appetite, coldness, or heat will determine the second. Let us consider some of the errors that have so much to do in bringing about or aggravating and continuing this leading disease of the stomach ; not the least among the many, is the improper mastication of our food.

It is a common, but a true saying, that “food well chewed is half-digested.” Mastication prepares the food for solution in the stomach, just as mechanical division out of the body renders substances more easily soluble. The whole digestive process is deranged, if we neglect the mastication of our food ; this neglect is the most frequent cause of dyspepsia.

There is no habit so destructive to the digestive powers, as our, we might almost say, "national" habit of swallowing our food without chewing it, like so many anacondás. Go into the common restaurants in our large cities, where business men snatch a few moments from their toil for money, to cram their stomachs with half-chewed meat and bolted vegetables, and you will see the foundations laid for future misery.

The gastric juice is not accumulated in the stomach while fasting, and is very seldom excreted unless on the application of food or other excitants. It is poured out in the proportion necessary for the solution of the food required by the system; if more than this amount is eaten, this fluid is not increased in quantity, and the excess of food remains in the stomach undigested, or passes in a crude state into the intestines, becoming a source of nervous irritation, pain, and disease for a long time. This fact is of the highest importance in the preservation of health, as over-eating not only injures by its excess, but prevents the proper digestion of what the system actually requires. High livers surely weaken their digestive system; even though they experience at the time only a slight fullness and oppression, the injury is done, though not felt because we are unconscious of the existence, or of the condition of the stomach, unless it is seriously diseased. When we are conscious of the existence of a brain, or lung, or heart, or stomach, or intestines, or other organs, we may be sure that something is going wrong in them; and we had better heed the warning in time.

After excessive or improper eating, the surface of the stomach becomes red and dry, the secretion is vitiated or suppressed, and irregular patches of inflammation, resembling eruptions on the skin, and ulcerations appear, extending up to the mouth in the form of canker, etc.; the membrane is congested, the fluids are acrid, and the bile flows into the stomach; these morbid conditions are accompanied by corresponding appearances in the tongue, which thus becomes an important guide in ascertaining the state of the digestive

apparatus; on the repetition of the cause, the coats of the stomach become disorganized by degrees, and the worst and least curable form of dyspepsia comes on.

The causes and kinds of indigestion are legion, but they may be thrown into two classes.

In the first place, the secreting glands may be seriously damaged and permanently impaired. Under rough treatment they get worn out. They wither up; their rounded cells shrink and waste; their mouths get blocked up with adventitious material, or tightened and close with bands of misplaced tissue. In these cases, there is little help, save by artificial digestion, and by careful economy of the waning powers of the organ; and their occurrence is a warning against the careless and cruel treatment of such tender structures.

The other and more common forms of dyspepsia are of a more temporary nature, and, at the present day, come about, for the most part, in an indirect way.

These gastric glands, for instance, like all other parts of the frame, require themselves to be nourished; and when the body wastes, either from complete or partial starvation, or from some enemy, in the shape of disease, robbing the tissues of all the goodness of the food that is brought to them by the stomach, they, in common with all other parts and organs, grow weak. They flag in their work, the juice they prepare is thin and powerless, and, the more they want nourishment, the less are they able to digest and accumulate nutritious material for themselves or for the body at large. Hence, to a starving seamstress, or to a patient recovering from fever,—much as they need food,—food is a burden, and must be doled out to them little by little and in the most digestible form. The glands, also, like other parts of the body, are subject to the influence of the nervous system; and, by means of that system, are placed *en rapport* and sympathise with other parts of the body. A subtle influence, carried along certain nerves, may paralyze these glands, stop their work, and dry up the stomach just as similar influences dry up the mouth through stoppage of the flow of saliva. Every one

knows how fear, anxiety or pain may so check all saliva, that the tongue cleaves to the roof of the mouth; in such cases starch may be held in the mouth without undergoing any change into sugar. No digestion in the mouth goes on, and just the same takes place in the stomach. A man goes to dinner with his mind full of fears, anxieties, and troubling thoughts. His stomach is dry, his gastric glands are stopped in their work, as by fright, and the meal lies a heavy, unchanged, undigested lump, in a powerless cavity.

Or, on the other hand, something indigestible, something unsuitable is eaten, and the glands resent the insult. They strike work. They are made and constructed to digest certain things; and if solicited to undertake duties not in their business, they refuse.

In all these cases of temporary indigestion, the means of remedy are threefold.

The first is, especially in case of indigestion from want of power, or from ill-directed and ill-timed nervous action, to give the stomach as light and as digestible food as possible. The more frequently it is given, the sooner will the frame, if it receives the nourishment kindly, recover its power; but it must not be given too frequently, for these glands require time of rest like other parts of the body.

Secondly, one may administer to the body food already digested;—artificially digested. This is a means of treatment which has as yet hardly received practical attention; but it seems to promise a great deal. It is very easy to digest artificially a large quantity of meat; by this means a quantity of palatable fluid capable of passing at once as digested nourishment, into the blood without troubling the gastric glands at all, might be prepared. Probably in a few years this will be largely done. Lastly, we may create a sort of artificial gastric juice. We said that gastric juice was a biting sharp liquid. It owes its property partly to its being acid, and partly to its containing a purely active matter called pepsine, which is really a sort of ferment. Acid alone will not dissolve meat, or dissolves it very, very slowly; but pep-

sine and acid together will sooner or later dissolve all the proteides that are presented to them. Hence, if we give a flagging stomach both acid and pepsine, we give it the means of carrying on digestion, without having recourse to its own capital strength. Under the idea that there is always enough acid in the stomach, pepsine (or a mixture of various things, containing acetal among others, and sold under the name of pepsine), is frequently given as a medicine. And under the idea (which is much nearer the truth) that in ordinary stomachs, the great want is not pepsine, but properly acid; this latter is frequently given alone with great benefit. But in giving these things, we must remember how sensitive and "touchy" the stomach is. Very frequently, when we offer a stomach additional acid, it is offended, and ceases to secrete even the small quantity it was pouring out before. On the other hand, by the common physiological law, that things act as stimuli because they are unlike, strange, and foreign to the body to which they are presented. The presence of an alkali spurs the stomach on to pour out more acid, and hence, even for the production of acid, a little gentle alkali is the best stomachic; and perhaps the best stimulant is the alkaline saliva. But the due and careful administration of these artificial aids to digestion belongs rather to the medical art, than to popular physiology.

The symptoms are almost numberless, indicating, as they do, the various perverted functions described or referred to. We have perverted sensations. When our digestive organs perform their duties healthily, as before remarked, we are hardly conscious that we are possessed of the organ we call the stomach, but when diseased we feel, so to speak, the stomach all the time. There is a feeling, not always of pain, but of discomfort in various ways; there may be a feeling of fullness, or of emptiness, of sinking or fluttering at the pit of the stomach, with a craving for food, or an ill defined sense of burning over the stomach and chest, heartburn (*cardialgia*), acidity of the stomach, with erucations of a sour, disagreeable character waterbrash, (*pyrosis*); at times

a feeling of positive pain or tenderness felt over some tolerably definite area ; a feeling as of an excessive movement of the bowels, of a sinking or tightness across the abdomen ; depression of mind, fear of death, dizziness, loss of memory, in a measure ; constipation, the stools, when passed, deficient in color, or the motion of the bowels may be excessive ; vomiting, with or without pain, either immediately, or at variable intervals after taking meals ; this is not an uncommon symptom and not infrequently affords decided temporary relief. Specks floating before your eyes. The mouth is clammy, or has a sour or bitter taste, breath foul, headache, wandering pains in the back or in the right shoulder, palpitation or irregular action of the heart ; cough, disordered urine, a general wasting and emaciation from insufficient nourishment. Skin of a peculiar sallow, muddy look, at times slightly tinged with bile, or dry and wrinkled. These and many other indications accompany the many forms of disordered digestion, known as dyspepsia.

“In a very practical address on this subject, Dr. Hood drew especial attention to those cases of gastric lesion in which dyspepsia played an important part as a symptom, and suggested that, in many cases of so-called simple dyspepsia, there was a definite lesion. The carefully compiled category of symptoms incidental to ulceration of the stomach, suggested that the diagnosis was easy, the very opposite of that being clinically the case. Ulceration of the stomach was of very frequent occurrence, but the symptoms of ulceration varied very greatly. In treating assumed ulcer, the patient must be kept in a recumbent posture. Where there was much enlargement of the stomach. Dr. Hood generally used a counter-irritant, and he freely prescribed the various preparations of opium in those cases where there was no doubt that the dyspepsia did not arise from hepatic engorgement ; it not only stimulated the bowels, but also made the patient less intolerant of restraint. Where the presence of ulceration was well marked, such treatment should be resorted to as would be insisted on if the ulcer occurred on the

surface of the body. In the case of a lady, who at the time of first seeing him was afraid to take the simplest food, and in whom there was found in the epigastric region a spot very tender on pressure, he ordered her to bed, recommended rich milk and light broth as diet, and prescribed six drops of laudanum every four hours. Iodine was suggested as a counter-irritant. A simple soap-and-water enema was to be used every other day.

From the first the patient's progress was satisfactory. She left her bed in fourteen days, and recently he received a letter stating that she was quite well.

Dr. Daniel said that three or four years ago he attended a gentleman who had acted as a special artist for a newspaper during the Franco-German war. He was a fine muscular man, but had contracted indigestion. He gave calomel and colocynth, but the symptoms increased, and the patient eventually died of exhaustion.

Dr. Schacht suggested that in addition to rest, an enema every other day was important. Constipation was an awkward symptom, and the enema, by relieving the stomach, allowed the opium to do its work.

Dr. Campbell Pope said that he overcame constipation with bismuth in conjunction with belladonna.

Dr. Orton said he knew of a practitioner who had symptoms of ulceration for thirty-five years, and who at last collapsed from vomiting. The *post-mortem* examination revealed ulcers in all stages.

Dr. Hood, in reply, suggested that marked dyspepsia required the most careful examination, for early diagnosis was very difficult. The ulcers were really boils of the stomach, resulting in choked glands. He was strongly of opinion that dyspepsia demanded vigorous treatment."

Sassezki has determined, in the cases of three patients suffering from chronic gastritis and four healthy persons, during a phase of profuse sweating, the degree of acidity of the liquid taken from the stomach, the digestive power of the latter on fibrine, and the amount and degree of acidity of the

urine. He found that the sweats weakened the digestive power of the gastric juice, reduced at the same time its acidity, and that also of the urine; and this the more energetically the more abundant the perspiration was. From the practical point of view, the author inquires if, amongst dyspeptics subject to perspiration, it would not be well to try atropine to diminish the perspirations, and to increase, at the same time, the acidity of the gastric juice. He, likewise, is of opinion that the same acidity might be increased by rendering the urine alkaline by means, for instance, of a vegetable diet. He throws out the suggestion, whether the instinct which induces the inhabitants of hot countries to instinctively prefer a vegetable diet, is not to be found here.

Treatment.

There is perhaps no abnormal condition of any organ, or set of organs, of the system for which we are provided with a greater variety of remedies, or forms of treatment, than are offered, both, by the profession and by the laity, for the amelioration or cure of the disorders of digestion.

Primarily these involve *regimen*,—a term employed to briefly express the regulations of diet, and the habits of an individual to preserve health, or to cure disease,—secondarily *medication*.

The first we consider the most important. The cooking should always be attended to with care. The meals should be regular, with ample time allowed for their dispatch by all means making meal times the most pleasant and social hours of the day. The food should be simple as well as nutritious; well cooked, yet not over done, avoiding, as a rule, all salt or smoke cured meats. Variety may be obtained in having a change of dishes from day to day rather, than in numbers at a single meal.

The following bill of fare has been found very good in dyspeptic cases.

7 or 8 A. M. breakfast. Cup of tea or milk. Soft boiled, new laid eggs. Any variety of fresh fish or lean of an under

done mutton chop. Oat meal porridge well cooked. Stale bread and a little fresh butter, beeftea, mutton-broth etc.

1 P. M. dinner. Cod fish, sole, or in fact almost any kind of fresh fish, mutton, venison, grouse, hare, partridge. If flesh meat has been taken at breakfast then none or at best only a small portion should be taken at dinner. Rare roast beef, duck or lamb, cauliflower, asparagus, floury potatoe, baked apple, a few grapes or an orange—no raw apples.

6 or 7 P. M. A cup of weak tea with half milk and a slice of bread and butter. No meats of any kind at this time or a little well boiled rice and milk — or cracked wheat.

Pastry, pies, doughnuts, confectionery, all raw fruits except grapes and oranges are strictly forbidden. No coffee, beer or strong undiluted liquors of any kind.

Food should be thoroughly masticated before permitting it to pass into the stomach. Pastries, hot breads, highly seasoned foods, etc., should be eschewed.

The most kinds of game may be eaten. Tea, coffee and intoxicating liquors should not be used. Prolonged nor arduous exercise should never be entered upon with an empty stomach, nor an overloaded one. Walking, running, jumping, calisthenics, sawing wood, etc., may be engaged in as opportunity may present, or circumstances dictate, desisting in them and carefully resting half an hour before, and after each meal. Bathing should be rigidly observed to maintain that healthy action of the skin with which the stomach so deeply sympathizes; as you will remember, I referred to in speaking of the breaking down and wearing out process, that without this elimination of waste, multiplied poisons would flood the circulation. These pent up cutaneous ejections, so obnoxious to digestion, would invade and derange the stomach.

The following table is, with slight modification, from Dr. Leared.

Easy of digestion.—Mutton, venison, hare, sweet bread, young pigeons, partridge, pheasants, grouse, beef tea, mutton broth, milk, turbot, haddock, flounders, sole, fresh fish

general, roasted oysters, stale bread, rice, tapioca, sago, arrow root, asparagus, seakale, French beans, cauliflower, baked apples, oranges, grapes, strawberries, peaches, toast water, black tea, sherry, claret.

Modcrately digestible.—Beet, lamb, rabbit, turkey, duck, wild water fowl, wood cock, snipe, soups, eggs not hard boiled, butter, turtle, cod, pike, trout, raw or stewed oysters, potatoes, turnip, cabbage, spinach, artichoke, lettuce, celery, apples, apricots, currants, raspberries, bread, farinaceous puddings, jelly, marmalade, rhubarb plant, cooked fruits, cocoa, coffee, malt drinks, port wine.

Hard to digest.—Pork, veal, goose, liver, heart, brain, salt meat, sausage, hashes and stews, mackerel, eels, salmon, herring, halibut, salt fish, lobster, crabs, shrimps, muscles, oil, melted butter, hard boiled eggs, cheese, fresh bread, muffins, buttered toast, pastry, custards, nuts, peas, plums, cherries, dried fruits, cucumbers, onions, carrots, parsnips, beets, beans, mushrooms, pickles, chocolate, champagne, cordials.

An excellent article of diet for dyspeptic patients is koumiss. We give a simple method of making it.

Koumiss.

Koumiss made at home, costs about fifteen cents a quart. The following is a recipe for its manufacture: "Fill a quart champagne bottle up to the neck with pure milk; add two tablespoonfuls of white sugar, after dissolving the same in a little water over a hot fire; add also a quarter of a two-cent cake of compressed yeast. Then tie the cork on the bottle securely and shake the mixture well; place in a room of the temperature of 90 to 95 degrees Fahrenheit for six hours, and finally in the ice-box over night. Drink in such quantities as the stomach may require. It will be well to observe several important injunctions, in preparing the koumiss, and they are:—

1. To be sure that the milk is pure; 2. That the bottle is sound; 3. That the yeast is fresh; 4. To open the mixture

in the morning with great care, on account of its effervescent properties ; 5. Not to drink it at all if there is any curdle or thickening part resembling cheese, as this indicates that the fermentation has been prolonged beyond the proper time." Make it as you need to use it. The virtue of koumiss is that it refreshes and stimulates, with no after-reaction from its effects.

Milk powder is excellent in cases where a milk regimen was necessary but became disgusting to the patient. The powder (made by evaporating skimmed milk) may be dissolved in hot water and injected into the stomach by the œsophageal tube used in feeding phthisical patients.

Along with diet, etc., mental states and nervous impressions, are of supreme consequence, since anxious occupation, or harrassing responsibility may very materially retard recovery.

Secondary to *regimen* we have placed *medication*. Important as is the part medication bears in these cases, we have not misplaced it. The medical agents indicated are not always the same in character and are almost as great in variety as are the symptoms presenting for treatment, tonics, laxatives, antacids, as likewise other palliatives and alteratives may, under the various forms or degrees be indicated.

Tonics in the form of pure vegetable bitters, such as gentian, quassia, columbo, etc., are very suitable as direct stomachics. In cases of long standing where nervous debility is a prominent feature, extract of nux vomica or strychnia in one fortieth ($\frac{1}{40}$) to one thirtieth ($\frac{1}{30}$) of a grain will frequently give more satisfaction than any other remedy I now call to mind. In *anæmic* cases the syrup of iodide of iron in ten (10) to thirty (30) drop doses may be given thrice daily, for some time.

Rhubarb has long held its place as a favorite laxative in habitual constipation. Should it lose its effects from continued use, or be unequal, alone, to the duties required, extracts of colocynth, aloes, etc., may be added in pill form. Saratoga, or Vichy water have sometimes acted with excellent effect.

If *antacids* are indicated, baking soda five (5) to ten (10) grains dissolved in water, or a desertspoonful of lime-water at the time indicated, will afford much relief to the patient. Carbonate of magnesia, or aromatic spirits of ammonia is very excellent. Pulverized charcoal, taken as in heartburn, or mixed with glycerine, or simply with water, and drank, is a very useful corrective, by its absorbent power.

As *alteratives*, where we have inaction of the liver, a moderate use of the blue pill, say one fourth ($\frac{1}{4}$) of a grain thrice weekly, repeated at intervals; nitro-muriatic acid in doses of three (3) to four (4) drops, is an excellent tonic for both stomach and liver; the same is also claimed for nitric acid in two (2) to three (3) drops at a dose. These acids are to be taken dilute in syrup or water. If heartburn is excessive, in addition to the antacids already named, tinc. of ginger and camphor water may be given, also chloroform in five (5) to ten drop doses in water will often afford almost instantaneous relief. In the stomach ache, so common to dyspeptics, a nice carminative may be found in the oil of cajuput, four (4) or five (5) drops at a dose, on sugar; or spirits of camphor, or compound spirits of lavender, or cardamon, or the essence of ginger are, very justly, popular remedies for relief. A mouthful of very hot water will often quickly quell the pain. The use of hot water as already described is very serviceable in almost every stage and form of dyspepsia. In water-brash (*pyrosis*), mild astringents, such as catechu lozenges, or tinc. of chloride of iron, five (5) to ten (10) drops in water, or one fourth ($\frac{1}{4}$) to one half ($\frac{1}{2}$) drop doses of creasote, in water is, I think, a most desirable, and pleasant remedy.

Among the many formulas, I give a few well tried as curatives for this trouble.

Ingluvin,	.	.	.	.	.	1 drachm.
Sub-nitrate of bismuth,						
Hydrastis, Pulv. each	.	.	.	.	.	2 drachms.

Five (5) to eight (8) grains immediately after each meal.

Wahoo (*euonymus*) known as burning bush or Indian arrow-wood, in indigestion or dyspepsia as also intestinal torpor is a fine remedy. I have not, for years, been without it in some form, usually in tincture. The bark of the root is the officinal part to be used, the seeds are purgative and emetic.

The American wahoo, the kind I use, grows in woods, thickets, creek and river bottoms; it flowers in June. Take of the bark of the root one (1) ounce, of water one (1) pint, and make a strong infusion of this, and take one to two tablespoonfuls every three hours. I like it very much in the following formula :

Fl. ext. of wahoo,	2 ounces.
Syrup of orange peel,	1 ounce.

Take two teaspoonfuls every three hours until four doses are taken in twenty-four hours.

It will be found a very excellent remedy in gastralgia (pain in the stomach), dyspepsia, indigestion, torpor or want of tone to stomach and bowels. Where the dyspepsia arises from torpor of the liver, I believe it will be found equal to any remedy I might name; taking of the solid ext. in pill form, five (5) to ten (10) grains; infusion, one (1) to two (2) ounces; fluid extract twenty (20) to (30) drops night and morning.

Where dyspepsia is accompanied by fermentation with the rapid disengagement of large volumes of gas after meals, the most satisfactory remedy is chloroform in fifteen (15) to twenty (20) drop doses in a little simple syrup. After a few moments the gas is expelled from the stomach, and the fermentation arrested. I have already referred to this remedy and know, full well, from personal experience its value.

If you have a case of dyspepsia with chronic dysentery, try :

Salicylic acid,	1 drachm.
Bi-carbonate of potass,	2 drachms.

Triturate thoroughly, then add—

Water, 4 ounces.
 Dissolve, add—
 Alkaloid hydrastin, 10 grains.

Take a teaspoonful after each meal.

Dr. Dunbar calls attention to the efficacy of bismuth in that form of dyspepsia occurring in children, characterised by enlarged papillæ fungiformes on a coated tongue, loss of appetite, dullness, and languor. He gives two minims of liquor bismuthi to a child under one year, three or four times a day. Under this treatment, besides the improvement in the symptoms enumerated, the action of the bowels becomes more regular. This remedy is useless in dyspepsia when the tongue is smooth and clean, and shows no enlargement or redness of the papillæ.

Malto-pepsine has been found very beneficial, using from five (5) to fifteen (15) grains after each meal. Lacto-pepsine in some cases gives great relief. Dose ten (10) grains after each meal.

I am indebted to Dr. A. H. Tagert of Chicago, a gentleman of rare ability, and a pronounced successful and honored Physician, for the following :

“Bondantt’s pepsine, 1 drachm.
 Sub-nitrate of bismuth, 1 drachm.

Make into ten powders.

Take one powder before each meal.

In a case of protracted and incontrollable eructations of gas from the stomach, the following was recommended and used with marked success.

Salicylate of Soda, 2 drachms.

Put it in fifteen (15) tablespoonfuls of water. Dose one (1) tablespoonful once in five (5) hours.”

The following is good where digestion is slow and feeble, merging, as it were, into indigestion.

Quinine,	.	.	.	.	.	12 grains.
Ipecac,	.	.	.	.	.	12 grains.
Ext. gentian,	.	.	.	.	.	24 grains.

Divide in twelve (12) pills, and take one every day at dinner.

Homœopathic Treatment.

To facilitate the choice of remedies, the disease is here classified, with remedies attached to each kind. Before selecting a remedy, consult the details below.

For dyspepsia of adults, aconite, antimony, arnica, belladonna, bryonia, calcarea carb., carbo veg., chamomilla, china, hepar sulphur, ipecac, mercurius, nux vomica, pulsatilla, phosphorus, sepia, sulphur, veratrum.

Of children, aconite, bryonia, calcarea carb, chamomilla, ipecac, pulsatilla, sulphur.

Aconite.—When at the commencement of the attack there is considerable fever, with thirst, and nausea; also when there is redness and soreness of the mouth and throat.

Arnica.—When it is caused by a fall, or a blow upon the stomach, with pain and a sensation, as if the small of the back was broken; tongue covered with a thick yellowish coating; nausea, with inclination to vomit; frequent eructations with a putrid or bitter taste; nervous excitement; heaviness of the limbs.

Nux vomica.—Suitable in most cases of dyspepsia, at the commencement; particularly when there is constipation and tendency to piles; sour, bitter taste in the mouth; when food, particularly bread, tastes sour, bitter, or insipid; the patient has not much appetite, but a craving for beer, wine or spirits; easily satisfied with food; after eating he is troubled with nausea; vomiting of food; dizziness; heaviness; drowsiness; fullness and distention of the stomach; tender to the touch; head confused.

Sulphur.—Especially good in cases of long standing, or when there is no appetite for meat and bread, but with a craving for wines and acids ; difficulty of breathing ; nausea after eating ; belching and vomiting of food ; shivering ; acidity and water brash ; sour stomach ; mental depression, dissatisfied with everything and everybody. *Calcareo carb.* suits well after this.

Pulsatilla.—An important remedy in dyspepsia ; particularly for recent cases caused by over eating ; by the use of pork, mutton, butter, or any greasy substance ; taste of the food comes up again in the mouth ; inclination to vomit, especially after eating or drinking ; taste flat, or putrid, resembling bad meat or tallow ; pressure in the pit of the stomach, especially after eating ; the patient feels chilly, is weak, cross, and melancholy.

Antimonium cr.—Particularly useful when the disorder is caused by overloading the stomach, and the following symptoms are present : Taste of the food last partaken of comes up in the mouth, gulping up particles of undigested food soon after eating ; tongue is coated with a white or yellowish mucus, stomach feels tender to the touch, and distended.

Belladonna.—When there is painful distention of the abdomen, with griping, as if the bowels were clutched ; hic-cough ; nausea, or a loathing of food ; vomiting of water or bile, also when there is dullness of the head, or congestion of blood to the head.

China.—Dyspepsia from loss of blood or other discharges, when caused by an impure atmosphere, and when the following symptoms are present : Pressure in the stomach, as if from a load ; indifference to food and drink ; craving for wines and acids ; flat or bitter taste in the mouth ; desire for a variety of dainties without knowing which ; morbid craving for something strong, sharp, or sour ; weakness, and tired feeling ; the patient bends and stretches his limbs from a sense of weariness.

Sepia.—No hunger, but considerable thirst ; fullness of the head ; pain in the bowels from wind.

Chamomilla.—Especially for dyspepsia brought on by a fit of passion, or by standing in a draught when perspiring; gulping up of food, nausea, vomiting of food and green phlegm, or bile; cramps in the stomach, headache, fullness, giddiness, sleep disturbed, and tossing about, face red and hot.

Hepar sulphur.—For dyspepsia when caused by taking blue pills, or other preparations of mercury, hungering for stimulating things, wines or acids, the stomach appears to be very sensitive and easily deranged, though the patient may be healthy; nausea in the morning, with vomiting of sour, bilious, or mucous substances. May be given in alternation with *nux vomica*, if there is hard, light colored stools, or with mercury, if there is a whitish diarrhœa.

Ipecac.—Especially suitable for children when they have vomiting of food, drink, or bile, vomiting with coldness of the face and extremities, tongue coated with a white yellowish coating, vomiting with diarrhœa, aversion to food, particularly of fat, rich food, or for dyspepsia caused by eating turkey, pastry, etc.

Mercurius.—Belching of acrid, bitter substances, putrid, sweetish, or bitter taste in the morning, inclination to diarrhœa, with straining or perspiration, weak digestion with constant hunger, pressure at the pit of the stomach after eating. Suits well before or after Lachesis.

Phosphorus.—Empty belching, especially after eating, vomiting after eating, burning in the stomach.

Administration of remedies.

In recent cases, and if there be much pain and sickness at the stomach, take of the selected remedy a dose every half-hour, or every two or three hours. As soon as the severity of the symptoms begin to abate, the intervals should be lengthened. In chronic cases the remedy should be repeated three times a day. When the globules are used, use ten for an adult.

BILIOUS ATTACKS, BILIOUS VOMITING; OTHERWISE ACUTE INDIGESTION OR SICK HEADACHE.

The popular term of bilious attack is too well known and widely used to discard; at the same time it implies that the liver is most at fault, whereas it is the stomach primarily and principally. What is ordinarily called a bilious attack may arise in totally different ways; it may be occasioned by indigestible or rich articles of food, as pork, goose, duck, salmon, mushrooms, cucumbers, ice cream, cold drinks, wine, spirits, or beer, when it is usually acute dyspepsia; or it may arise from the arrest of digestion by fright, excitement, chill, fatigue or other causes. Bilious attacks also come on almost periodically, with some persons from very slight cause or from none that are apparent when we have chilliness, shuddering, general malaise, frontal headache, inability to keep about, nausea, vomiting of bile or glairy mucus, uneasiness and distress at the stomach, with a faint feeling, and sometimes a craving for food, but an inability to take any, countenance sallow, urine high colored, with a pink or sandy deposit, breath offensive, and the tongue coated.

When these symptoms are at all severe and continuous, such attacks are now and then spoken of, but most erroneously as "gastric fever" because the feverish symptoms are only the accessories of the case. Irritation of the stomach sometimes sub-acute inflammation, and more or less congestion of the portal system, attend bilious attacks.

Treatment.

Nux vomica.—When brought on by sedentary habits, where there is constipation.

Pulsatilla.—When it arises from the same cause but the bowels are relaxed.

Gelsemium.—Chilliness with aching pains in the back and limbs; dull pains in the bowels; bilious evacuations with considerable flatus.

Podophyllin.—Uneasy, disturbed sleep; desire for sour things, heatburn, nausea, bilious diarrhœa.

Diet.

During the continuance of the attack, in the repugnance to food of all kinds, shows that the stomach is not in a condition to receive or digest food. As soon as the appetite returns, a cup of weak black tea, with some dry toast, may be taken; the food should continue to be very light, but taken frequently for several days.

COLD FEET.

Cold feet is generally a symptom of dyspepsia, and will be cured by removing the cause. If we have a healthy action of the digestive organs, we may count on a healthy circulation—a healthy circulation gives comfort and warmth to the extremities. When the heart's action is languid and there is not sufficient action to throw the blood to the extremities, the hands and feet become cold. Careful living, gentle exercise, basking in sunshine and cheerfulness have a wonderful effect in promoting good circulation in the hands and feet, and when this is the case they are never cold.

Of the berries of prickly ash, ten (10) to twenty (20) grains of the powder three or four times a day, or a teaspoonful of the tincture, is an excellent remedy for cold feet and hands which depend on sluggish circulation.

All persons who have cold feet, take cold easily from slight causes, and these colds are followed by cough. When this is the case great attention should be given to keeping the feet warm; or in other words equalize the circulation, so as to draw the excess of warm blood from the head and lungs to the hands and feet. One important means of keeping the feet warm is to keep them scrupulously clean. It is well known that the largest pores in the body are in the feet, and through these pores a vast amount of the wastes of the body escapes, and if they are clogged up, these wastes are driven back and re-absorbed, and the whole mass of blood is contaminated; hence people who are troubled with cold feet should dip them in cold water, an inch deep, night and morning, for half a minute, then rub them with the hands,

wipe dry, and draw on the stockings, all within three or four minutes.

DISEASES OF THE INTESTINES AND PERITONEUM.

Having considered some of the diseases of that portion of the abdomen, confined to the stomach, I now pass to another portion of the abdomen, that occupied by the intestines and peritoneum. Just here, upon the threshold, as we enter upon the consideration of this series of most serious diseases, permit me to emphasize the fact, that they are, usually, of a most dangerous and painful character. I shall endeavor to so carefully present them, their causes, symptoms and treatment, that what I shall have to say concerning them, individually or collectively, if faithfully adhered to, in treating these cases, will, in each instance, prove of many-fold more value than the price of this work. Notwithstanding my endeavor to do this, I would advise in almost, I might say, that every case be relegated to the care of a physician. I do not feel that I can be too urgent, in pressing upon you, the importance of calling in the timely aid of your family physician, since by far the major portion of those cases of disordered bowels accompanied by pain and soreness, necessitates it, owing to the great liability of the speedy termination of these diseases in death.

INFLAMMATION OF THE BOWELS. (*Enteritis*.)

Inflammation of the bowels means inflammation of the small intestine, especially that portion lying between the duodenum and colon. If it extends into the colon, (the large intestine), colitis or dysentery. The more severe cases, especially in children, are called simple, or English cholera, summer complaint, or cholera infantum, and which I will consider as such in their proper place.

Symptoms.

The symptoms of an attack of acute enteritis are those somewhat similar to colic for which, in its incipient stage, it may be, and sometimes is mistaken; it is attended with fever and tenderness. The pain in that portion of the abdomen is increased by motion or pressure, a condition the contrary of that in colic, in which pain is relieved by pressure.

Or it may set in with constipation, with a chill and fever, and extreme thirst. Upon full establishment of the disease, the fever runs high; the pulse, tense and full at the onset, becomes small and wiry, remaining frequent. Later, abdominal swelling; nausea and vomiting; at times most distressing fits of retching, supervenes, superinduced either by sympathy or the stomach sharing in the inflammation. The tongue may be clean and natural in appearance, or covered with a white coat, or it may be red and dry, indicative, as you will remember, of a most serious condition. I have said there was constipation; it may alternate with diarrhœa, the stools of varying consistency and color, may, and do contain, at times, blood in small quantities, pus rarely; blood or pus only in very severe cases. No appetite; thirst unceasing; pain paroxysmal, shifting, at no time ceasing entirely, greatly increased on pressure; the patient seeking relief, as in peritonitis, by lying on the back with limbs drawn up. Sometimes a very violent throbbing in the abdomen is present as the most distressing feature in the case. Urinating becomes difficult and very painful. In those cases terminating fatally, the pulse becomes quick and irregular, loses its tenseness; hiccough present; features haggard, denoting great suffering; strength gradually becomes exhausted; collapse—death.

Cause.

The worst, and least hopeful cases are those induced by mechanical obstruction of the bowels; whether from bands in which a loop of intestine is caught, causing strangulation, or impacted feces, or hernial strangulation. It may be caused by blows, or other injuries; irritating and indigestible food;

neglected constipation ; exposure to wet or cold ; or corrosive poison, etc.

Treatment.

Treatment, will be in a measure dependent upon the cause of the attack. Where the attack is mild, and the result of cold, profuse sweating by hot bath, together with ten (10) grains of Dover's powder and a quiet rest in bed will often prove sufficient. If in the serious cases of mechanical obstruction, domestic treatment would be of little avail without it was extraordinarily intelligently administered, and even then, should not be relied upon.

In every case, however light, the patient should be placed in bed, and where the patient has been previously in ordinary good health, I would recommend fasting for a few days, or, at most, giving only such diet as will be readily absorbed and assimilated without taxing the stomach in the process, since, in the majority of cases, I believe the stomach, to a degree, involved in the inflammation ; by this we are the better able to remove the offending cause, and give rest to the parts. Thirst can be relieved by ice and lemon-juice. If there is a craving for food and the tongue be clean, a little meat broth may be given, but it is not advisable to give much, lest a residue be left in the stomach to be carried off through the already excessively irritated intestines. Skimmed milk, (the cream contains too much fat) and lime-water or soda water is perhaps the most judicious diet. Nausea and vomiting, if present, will be lessened if not checked, or avoided, by giving the nourishment cold ; at these times the milk and soda water is very desirable. Effervescing fluids are generally very agreeable to the stomach. If these can not be borne, nourishing injection may be given, per anus, to the rectum.

To control the fever give aconite, drops twenty (20) and veratrum viride, drops ten (10) ; in water, four (4) ounces. Give of this a half to one teaspoonful, according to age, each hour when awake.

I would not be in haste to check the diarrhœa if any be

present, on the contrary I usually give from two (2) to ten (10) grains of calomel with four (4) to twelve (12) grains of soda in powder at dose, according to age and circumstances, repeating the dose in from four to six hours, or in its stead, follow in a few hours with a quickly acting saline, or perhaps, if it can be borne, what is better, senna ; that, by the calomel moving the upper, and the saline or senna the lower bowel, we may have a harmonious and excellent cleaning out of the whole intestinal tract. Some prefer a dose of castor oil with four (4) or five (5) drops of turpentine, and as many of laudanum ; the oil to move the bowels, the turpentine to act on the kidneys, and laudanum to prevent griping. These not proving sufficient, or not advisable to administer, it may be found necessary to give an injection, per anus, of castor oil and water, soap suds, etc. Bismuth and calomel, ten (10) to fifteen (15) grains of the former, four (4) or five (5) of the latter ; to an adult may be given before the trial of an injection, after, if it is deemed advisable to further move the bowels.

If no food has been taken for twelve to twenty-four hours, and the bowels unmoved, bismuth in some effervescing form is very nice, and in mild cases at times quite sufficient. Give, say of bismuth ten (10) to thirty (30) grains in solution, with five (5) to fifteen (15) grains of effervescing citrate of potash and two (2) or three (3) drops of dilute hydrocyanic acid. Some may prefer the soluble citrate of bismuth ; or granular effervescing lime-juice and bismuth ; nausea and vomiting may be relieved by these means.

Hot poppy-head fomentations or poultices of the same may be applied externally. One of the most reliable, though simple remedy for this trouble is to dissolve, say one fourth of a pound of brown sugar in a pint of Jamaica rum, saturate a flannel cloth with this and lay it over the bowels, renewing when pained. Opium in some form, is almost an essential in these cases. It may be given in one (1) grain doses every two to four hours, or in the form of tincture five (5) to ten (10) drops every two to four hours, or the alkaloid of opium ;

morphine, may be given $\frac{1}{8}$ to $\frac{1}{4}$ grain doses every one (1) to two (2) hours.

Hyosciamus, solid ext., $\frac{1}{4}$ to $\frac{1}{8}$ grain at a dose, in the form of a pill, once in three to six hours will be found most excellent to allay nervousness.

After the irritating causes have been removed from the the intestinal tract, then give attention to diarrhœa, if any, especially if the patient has been in poor health previous to the attack. In these cases give five (5) grains of Dover's powder and ten (10) grains of carbonate of bismuth may be given every six hours, continuing until the diarrhœa is entirely subdued. A very nice remedy, especially for little folks, is what is known as "chalk mixture," of which there are various forms. I prefer the one here given since it is equally as efficacious as any I have ever tried, and it will keep in all weather.

Prepared chalk, (creta preparata.)

White sugar, (sacchra alba) each, . 2 ounces.

Glycerine, $\frac{1}{2}$ ounce.

Cinnamon water, (aqua cinnamoni), 5 ounces.

Creasote, 5 drops.

Give adults a tablespoonful and children a teaspoonful every fifteen minutes if necessary to relieve.

As soon as the acute symptoms are subdued, the bismuth will be continued with some good vegetable tonic; but five (5) to fifteen (15) drops of dilute hydrochloric acid to an ounce of water administered once to thrice daily, will be almost a necessity to aid in restoring digestive power to the stomach.

Diet should be easy to digest and not of a stimulating character. Flannel should be worn next to the person, and the greatest care observed to prevent a relapse.

Homœopathic treatment.

Aconite should be the first used and continued as long as

the fever is intense, and the skin very hot. After this arsenicum and veratrum should be given alternately, (turn about.) If the vomiting is violent and persistent, after having used these remedies for a considerable length of time, give ipecac. In some cases belladonna and mercury may be given in alternation after the aconite has reduced the fever, but there is still great soreness of the abdomen with intense thirst.

When the vomiting is so severe as to throw up the contents of the bowels, opium must be given, and if not relieved within eight or ten hours, give plumbum. At this stage, weak injections of an infusion of tobacco will sometimes be of benefit. A warm bath may also be administered with success.

Administration of remedies.

Of the selected remedy dissolve twelve globules in twelve teaspoonfuls of water, and give a teaspoonful one, two, three or four hours according to the severity of the symptoms. If the pellets are used give six at a dose. The diet should be of the mildest description, as gruel made of rice or flour; milk and water; milk toast and gum arabic water.

INFLAMMATION OF THE PERITONEUM. (*Peritonitis*).

The peritoneum is the serous membrane lining the abdomen and enveloping its organs. From the extent of this membrane, and from the organs which it may involve, makes its inflammation—happily rare,—one of the most dangerous character. It may be local, involving only certain organs primarily. That local form known as puerperal peritonitis, or child-bed fever, will be treated under head of diseases of women. Of the different varieties we have the *simple*, or sporadic, which even in the puerperal state is, with careful treatment, more often recovered from than not; *accidental* and *tubercular*.

Causes.

Causes may be exposure to cold and wet, falls, blows,

wounds, abcess of liver, opening of an aneurism, perforation of bowel by ulcer as in typhoid fever.

Symptoms.

In this as in enteritis we have pain and tenderness as the indicative symptoms ; with fever, distention of the abdomen, cold sweats, nausea vomiting and obstinate constipation. The acute inflammation may be confined to one spot, but is very apt to involve the entire membrane. It usually commences with a chilly sensation or a severe protracted rigor, succeeding this is fever, abdominal pain and distention. This diffused abdominal pain and tenderness is increased greatly by even the slightest movements as in breathing deeply, or raising the lower limbs in bed. The fever runs high at the onset, skin dry and burning, pulse frequent, not full, but small and wiry. Pulse and skin changes as the disease progresses ; the pulse will be less tense and more developed as the inflammation subsides, or very feeble and flickering if the disorder proceed towards a fatal termination ; the extremities covered with a cold sweat. Even in cases that may recover, the features become sharpened and carry the look of death. Pain is constant and severe, at first limited to one spot, afterward extending over the abdomen, increased by the slightest pressure to obviate which, the patient lies upon the back, with the thighs drawn up, retaining the same position however wearied. There is headache, suppression of the urinary discharge ; constipation, caused by paralysis of the intestines or by lymph gluing together the coils of the intestines thereby preventing the proper action of the bowels. The bowels are more relaxed except in the puerperal form of this malady. In three or four days, in violent cases, comes delirium, death. Its course is rapid, from the incipient chill to the fatal end, often occupying less than a week, though at times two. Andral fixes, as the average time, for an acute attack at between six and nine days and a subacute, (one of but moderate activity), at from twenty to thirty days. Death is usually preceded by

enormous distention of the abdomen, cold sweats, pinched countenance and a rapid flickering pulse. When fortunately recovery does take place, and unfortunately it is the least frequent termination, it is very slow and gradual, making it almost impossible to foretell duration or final consequences.

Treatment.

Blood letting is yet a common practice with some, and is in high repute. Much the same medicines are used in this disease as in enteritis, and in the same manner; opium, and calomel, the chief, in pill form one (1) grain of the former to two (2) to four (4) grains of the latter every two to four hours. Opium may be given in the form of tincture, (laudanum) and a salt, (morphine). Tinc. of aconite, veratrum viride, and digitalis are used in the early stages to control fever and subdue inflammation. Tinc. of opium may be given in injections per anus. Local application may be made by hot fomentations or poultices, as in enteritis, to which anodynes have been added, or turpentine stupes, or blisters. Cold has been advocated in the early stage by many authors. One eminent writer says: "in the early stage of peritonitis it deserves a more extended and thorough trial than it has yet received. It may be employed either by means of cold compresses, frequently changed; a flannel dipped in iced water. At a later period, hot applications are decidedly to be preferred, as the cold applications can be of no service, and will probably prove injurious." A mixture of two (2) ounces of aconite, to six (6) ounces of alcohol, may be used after this manner. Apply to the entire surface of the abdomen some of the mixture with a camel's hair brush, then cover with warm flannel, repeating as often as necessary. One eminent physician in Cincinnati said he had never lost a case since he had used this treatment. Bathing the abdomen with equal parts of sweet oil and spirits of turpentine well warmed, then quickly cover with a thick piece of cotton batting that had been previously thoroughly warmed, renewing the application frequently, is very highly recommended. If

there is a tendency to collapse, stimulants are called for at frequent intervals in small quantities, liquid nourishing food is often required in large quantities, and may be administered in the same way. If it cannot be borne by the stomach it may be given in the form of an injection, (enema). Quinine in full doses. Nausea and vomiting may call for very small doses of iced effervescent, with hydrocyanic acid and morphia; soda-water and milk; drop doses of creasote. Constipation requires treatment similar to that in enteritis. Hiccough calls for narcotics, blisters, etc. Chloroform, if very obstinate and distressing. The following is a very excellent remedy in these cases.

Deoderized tinc. of opium,	. . .	1 drachm.
Spirits of turpentine,	. . . .	1 "
Sub. nitrate of bismuth,	. . . .	2 "
Brandy mixture,	. . . .	$\frac{1}{2}$ ounce.
Gum arabic,	. . . .	4 drachms.
Sugar	. . . . .	4 "
Peppermint water,	. . . .	$\frac{1}{2}$ ounce.

A teaspoonful once in two to four hours according to the violence of the case.

Homœopathic treatment.

Aconite.—Generally most appropriate at the commencement. Use it also as a weak solution on hot cotton batting. A dose every two hours until the fever be abated.

Belladonna.—Burning or stinging pains; violent, bearing down, or forcing pain; extreme dryness of the mouth, the tongue cracked or swollen and inflamed, and sometimes covered with slimy, whitish mucus, or dry, fiery red and hot, or coated tongue, with crimson tip and margins. A dose every two or three hours.

Rhus.—Patient worse in the evening, and especially after midnight; restless, cannot be still, but must change the position, which affords but a few moments' relief; slow fever.

dry tongue, powerlessness of the lower limbs, they can hardly be drawn up. A dose every three hours.

Spongio-piling wrung out of hot water, hot fomentations, hot linseed meal poultices, toast and water, barley water, thin oatmeal gruel. After recovery flannel bandage in the day—tepid compress in the night, for some time.

When peritonitis is the result of external injury, arnica should be promptly administered. Concentrated tincture of arnica should be externally applied. To ten parts of water add one of the tincture. Wet cloth and lay on it. Covered with cotton.

COLIC.

Colic is an intestinal pain; in character paroxysmal, severe, griping, pinching or twisting; ordinarily situated in the vicinity of the navel. Usually we find it, combined with constipation and devoid of fever.

Varieties.

Flatulent; bilious; spasmodic, in this variety has been grouped, neuralgic, gouty or rheumatic; lead; nephritic; and uterine.

Symptoms.

Uterine colic may be either neuralgic, spasmodic or obstructive. It will be treated of under head of dysmenorrhœa.

Nephritic refers to the pain produced by the passage of small calculi from the kidney to the ureter. See gravel.

Flatulent colic may be owing to food difficult of digestion, overloaded stomach, cold, wet, etc., and is the variety most common from infancy to old age. In this variety the abdomen is distended; constipation; often nausea, belching and sometimes vomiting.

Bilious colic is often preceded by nausea, loss of appetite and a coated tongue. The paroxysms of pain are frequently accompanied with vomiting, first the contents of the stomach, then bile. The pain may last for some days with

little if any abatement. Bowels constipated, obstinately so. A condition known as meteorism, a peculiar distention with gas, may be present. This form is quite common in malarial districts, its onset similar to an attack of chills, with full and frequent pulse, accompanying the pain, etc., etc., of bilious colic. The American Journal of the Medical Science, April, 1872, is authority for saying that there is a form of malarial colic, occurring during summer and autumnal months in malarial districts in the form of an epidemic. Under head of bilious calculi more will be said of bilious colic.

Spasmodic-neuralgic, gouty or rheumatic colic is dependent upon some abnormal condition affecting first the great centres of innervation, and may arise from fright, anger, hysteria, hypochondria, in short it is neuralgic if from these causes, and is often spoken of as nervous colic. Its attacks are not usually of long duration, and are apt to be frequently repeated. If gouty or rheumatic, it is one of those forms that may seriously invade the internal organs, the stomach being the most frequent and dangerous seat of trouble. "Cramp in the stomach," the name by which it is usually known, is recognized by the suddenness of attack, extreme severity of the pain and the general tendency to prostration.

Lead or painters colic is superinduced by exposure to the poisonous influence of lead. It is widely known as the "dry belly-ache." The abdomen is contracted; at times knots of intestines may be distinctly felt; constipation exceedingly obstinate; no tenderness, great relief being afforded by pressure suffering extreme, with restlessness. There is a bluish grey line along the gums.

Treatment.

Treatment in kind, is somewhat common to all forms, and yet not distinctly the same.

In flatulent, as in all varieties, open the bowels; if the stomach is overloaded relieve that by a prompt emetic; follow this shortly if pain continues, with ten (10) to twenty (20) drops of essence of ginger or peppermint, or five (5) or six (6) drops

of oil of cajuput or some other like aromatic stimulant. If the stomach is yet unsettled and the pain violent, give aromatic spirits of ammonia ; spirits of camphor ; compound spirits of lavender or the oil of cajuput with bicarbonate of soda, given in small doses every few moments. If still insufficient, try laudanum, the old sheet anchor, five (5) to fifteen (15) drops in warm water ; the smaller the dose the better. Repeat this every fifteen to twenty minutes for a few times. Opium in pill ; paragoric, Hoffman's anodyne, etc. My favorite remedy again comes to the front in these cases, chloroform in ten (10) to thirty (30) drops. In giving opium in cases of colic you may often be surprised at the quantity taken before relief is obtained, and just on this point, I wish to warn you, lest you give too much, and render " the remedy worse than the disease " in its effects.

Externally I prefer dry hot applications, to wet ones, or blisters. The feet should be kept warm, bathing them in hot mustard water is very good. Kneading the abdomen gently will afford relief often, remembering, always, the possibility of hernia.

Bilious colic may be attended by an inflammatory condition. Open the bowels with castor oil, if the stomach admits. It may be taken, thoroughly mixing one (1) tablespoonful of oil with two (2) of spiced syrup of rhubarb. Magnesia may be retained better than the oil, or one-half ($\frac{1}{2}$) to one (1) grain of calomel with a like amount of opium every two, three or four hours. See biliary calculi.

Spasmodic, whether neuralgic, or cramp of the stomach, needs prompt treatment, essentially stimulant and anti-spasmodic, or anodyne. Warner's cordial, (tinc. of rhubarb and senna), in moderate doses, is laxative and stimulating ; give from a teaspoonful to a tablespoonful in hot water at once. Hot applications, footbaths, etc., as in other forms of colic. To prevent recurrence will require strict attention to diet ; proper exercise, tonics of quinine and iron, or the vegetable tonics.

Lead colic.—If rapid onset, sulphate of magnesia in from

from one-half ($\frac{1}{2}$) to one (1) ounce at a dose. This is an excellent non-gripping cathartic. The less it is diluted at taking, (if a drink of warm water be taken some time after) the better and more easily it operates. If the onset is slow, iodide of potassium in three (3) to ten (10) grain doses thrice daily. Compound syrup of sarsaparilla is a good vehicle in which to take the potassium. The iodide is said to possess an eliminating power over lead, combined with the tissues. Milk diet is very useful in these cases. Castor oil ; warm bath and opium are the most useful remedies.

Homœopathic treatment.

The patient should be placed in a warm bath, seated in a tub, and covered with a blanket to confine the steam. After being in the bath for about ten minutes, the patient should lie down in the blankets without being wiped, and covered with sufficient clothing, hot bricks or bottles of hot water should be placed around the patient, especially on the spots where the pain is most severe. As soon as perspiration occurs the patient will be relieved. The medicines may be given from the commencement of the attack. The different forms of colic with the remedies applicable to each are here given.

Common or flatulent colic.—Pulsatilla, china, cocculus, nux vomica, colocynth, sulphur, carbo veg.

Bilious colic.—Nux vomica, colocynth, chamomilla, bryonia.

Colic from indigestion.—Pulsatilla, china, bryonia, belladonna, carbo veg, nux vomica.

From obstinate constipation.—Nux vomica, opium.

From exposure to cold, damp weather.—Pulsatilla, rhus, bryonia.

From chill.—Aconite, colocynth, mercurius, nux vomica, chamomilla.

Colics in hysterical women.—Ignatia, nux vomica, coculus.

Lead or painters colic.—Opium, platina, belladonna.

Administration of remedies.

Dissolve twelve (12) globules of the selected remedy in twelve (12) teaspoonfuls of water, and give one (1) teaspoonful every ten, fifteen, twenty or thirty minutes, according to the severity of the symptoms. Each remedy should be repeated three or four times before changing to another. The intervals should be lengthened as the patient grows better.

Persons liable to colic should be careful in regard to their diet, avoiding all green vegetables, acid drinks, etc. During an attack only the slightest nourishment should be given, as toast water, gruels, etc. The feet should be kept warm and dry.

CONSTIPATION. (*Costiveness.*)

By constipation or costiveness is meant a partial or complete retention of the feces. The discharge being hard, dry, and small in quantity and evacuated with difficulty.

Symptoms.

The usual symptoms arising from a constipated state of the bowels are, head-ache, which is confined in most cases to the forehead, loss of appetite, flushing or a feeling of heat in the face from any slight cause, a sensation of weight in the belly and loins, foul tongue, and, in some people, languor and listlessness ; in others, irritability of temper.

Habitual costiveness not only induces great and serious inconveniences, but, when long neglected, may give rise to various formidable diseases, which frequently prove fatal. The most common consequences of constipation, are, giddiness, ringing in the ears, headache, tension of the bowels, the disorder called, *whites*, fistula, stricture of the lower bowel, eruptions on the skin, and various nervous diseases, such as hysterics, St. Vitus's dance, and hypochondria. In children, it not unfrequently precedes water in the head. Straining at stool has been known to bring on apoplexy, and, in children and delicate females, spitting of blood.

Treatment.

It is difficult to lay down arbitrary rules for treatment of this complaint as it arises from so many different causes. This *cause* we must endeavor to remove in order to arrive at the desired *effect*. Purgative drug must not be relied upon to cure costiveness, but it is possible to substitute simple aperient for the various patent drugs, the mischievous blue pills with which the suffering public is in the habit of dosing itself. Remedies that may be employed — usefully in overcoming the present discomfort by removing the hard collection in the bowels. After few days the patient must rely upon proper diet, exercise, the going at a certain hour of each day to stool — whether the desire is felt or not. No other one thing can so quickly establish a healthy state of the bowels as the habit of going at a regular hour. The diet should be closely attended to in this complaint, everything of a binding nature being avoided, such as animal food, especially salt meats, cheese, and stimulating drinks, pastry, highly seasoned dishes, etc. The patient should eat all kinds of fruit and vegetables, coarse bread, soups. Cracked wheat is excellent for the cure of costiveness. Injections of cold water should be used, and also the free use of cold water as a drink. Every one should attend promptly and regularly to the calls of nature. Probably the best time for this duty is in the morning, directly after breakfast.

Will give a few of the simplest remedies, which I have proved successful in some cases. Take of figs one half pound and senna one ounce. Chop the figs fine. Heat the senna leaves on a tin plate in the oven — pulverize it — mix the two together in a roll about as large around as a cent. Eat $\frac{1}{2}$ or $\frac{3}{4}$ an inch of the roll at night or beat an egg up raw, add a little water or milk, sweeten and drink an hour before meal time. Wheat bran according to directions has cured obstinate cases of costiveness where the patient has dosed herself with drugs for years. Eat of wheat bran two (2) tablespoonfuls after each meal or a half teacupful at night.

It can be eaten dry or in milk as preferred. This was first recommended to me by Dr. Emma Nichols of Chicago.

Dr. Tanner says : " Daily exercise in the open air, either on foot or on horseback, stands foremost among the remedies for constipation." General indolence, with too much sleep must be avoided. There are very few cases of costiveness with dyspepsia arising from sedentary pursuits that may not be cured by the sufferer drinking a tumblerful of spring water, retiring to bed at eleven o'clock and rising at seven o'clock, and taking a bottle of soda water, then walking for three quarters of an hour, and afterwards breakfasting upon weak tea with plenty of milk, meat, bread, etc. A pill of rhubarb and castile soap, one half of a grain each may be used. Two (2) pills should be taken at night. Sometimes the following is effectual.

Resin of podophyllin,	. . . . .	2 grains.
Fluid extract of rhubarb,	. . . . .	1 ounce.
Fluid extract of senna,	. . . . .	"
Oil of cloves,	. . . . .	4 drops.
Syrup of ginger,	. . . . .	1½ ounce.

Mucilage of gum arabic enough to make four ounces. Dose for an adult one tablespoonful, repeated sufficiently often to open the bowels.

A cold decoction of thoroughwort drank daily, sometimes has a beneficial effect. Injections of warm or cold water should be used, and will generally affect a cure without resorting to purgative medicines. Mettauer's aperient is highly recommended.

Pulverized aloes,	. . . . .	1½ ounces.
Bi-carbonate of soda,	. . . . .	4 "
Compound spirits of lavender,	. . . . .	2 "
Water,	. . . . .	2 quarts.

Mix in a jar, let it stand two weeks, shaking each day;

the mixture should then be poured off from the drugs. Dose, half a wine glass full once or twice a day. Dr. Beard gives this prescription: "The following contains four excellent articles for both indigestion and constipation.

Equal parts of
Podophyllin,
Rhubarb,
Nux vomica,
Carbonate of soda.

Make pills of one grain each, and take one at night before retiring. It may be necessary to reduce the quantity of podophyllin for those who are very sensitive to the drug. The podophyllin acts on the liver; the rhubarb acts on the bowels; the nux vomica gives tone to the stomach; and the carbonate of soda corrects the acidity."

An excellent practice for those suffering from costiveness is called kneading the bowels. This is really a modification of the Swedish movement or massage cure, must be taken in following the general direction of the larger intestines, passing the palm of the hand over the upper part of the abdomen — following the course of the colon — in the movement described under the head of massage has been found of great service.

Sugar of milk is recommended by Traube as a mild and trust worthy laxative in doses of two (2) or (3) drachms dissolved in half a tumbler of warm milk taken before breakfast.

Dr. Carter, of Liverpool, in an article on "new therapeutic agents," writes the following, concerning cascara sagrada: The fluid extract prepared from the bark of this shrub or small tree, is an excellent remedy in chronic constipation. I have used it for two years and have no doubt of its value. The fluid extract is reddish brown in color and extremely bitter. A very good method of prescribing it is in a mixture with twice its quantity of glycerine or one of the flavored syrups.

Of this a fluid drachm should be given three times a day, and the dose be diminished as soon as its apparent action is developed. It is what may be termed a tonic aperient and seems to produce an effect caused by that of belladonna and nux vomica united with an ordinary aperient. It evacuates the whole canal. The motion is not watery but usually semi-solid truly, feculent (foul) in character, and voided without difficulty; and so far from causing subsequent constipation, the bowels, will often act regularly after its use has been entirely discontinued. I have used it so extensively and the testimony to its value is so unmistakable, that it would be difficult to select particular cases to prove this.

Homœopathic treatment.

The principal remedy is nux vomica, when there is frequent, and effectual urging to stool, or a feeling as if the anus was closed; disagreeable taste in the mouth; loss of appetite; swelling of the abdomen. If nux is insufficient, give an occasional dose of bryonia, especially if the disorder occurs in warm weather.

Opium.—May be sometimes given in alternation with nux vomica, especially when there is great torpidity of the bowels, and without any desire to stool; redness of the face; rush of blood to the head; headache.

Platina.—When the feces are voided in small, hard lumps with much difficulty; shuddering; sensation of weakness in the abdomen.

Lycopodium.—When there is a painful urging, with a severe bearing down, but inability to pass the feces.

Antimonium crudum.—In cases where constipation and diarrhœa alternate.

Sulphur.—For long continued constipation, particularly where the patient is troubled with piles. Also when there is frequent desire to stool, but without any result.

Plumbum.—For obstinate constipation, the stools are hard and difficult, and the feces comes away in hard lumps or balls.

For constipation of pregnant women, give *nux vomica*, opium, *sepia*. For lying in-women, *bryonia*, *nux vomica*. For nursing infants, *bryonia*, *nux vomica*, opium, sulphur.

Administration of remedies.

Give of the selected remedy a dose once in two, three or four hours. When the remedy is given dry, from three to six pills at a dose. When given in water, dissolve six globules in six teaspoonfuls of water, and give one teaspoonful for a dose. Injections of, and bathing in cold water will be found very beneficial.

Accessory treatment.

In cases of an inveterate or chronic nature, recourse may occasionally be had to an enema of tepid or cold water ; as a temporary relief. The drinking of a tumblerful of cold water, night and morning, brisk friction by means of a coarse towel, combined with early rising and daily exercise will be found useful in promoting regular action of the bowels ; as also a tepid compress worn at night over the stomach and abdomen. Great regularity should be observed in the daily habit of procuring the relief of the bowels, from which, except under extreme necessity, there should be no deviation.

Electro-magnetism is another most useful auxiliary in cases arising from culpable neglect or indolence, or from inability, or impracticability to relieve nature whilst traveling. In chronic cases arising from inertness of the bowels or a kind of intestinal paralytic debility, electro-magnetism is often superior to any other means.

Diet.

The diet ought to be regulated according to the state of the digestive organs, and highly seasoned food should be avoided. Oatmeal porridge for breakfast, with or without bacon, brown or whole meal bread, stewed fruits and figs, should be taken as articles of diet.

DIARRHŒA.

Perhaps, properly speaking, it is not a disease *per se*, rather a symptom requiring treatment for the relief of the excessive discharges from the bowels. Difference in time gives rise to marked varieties,—acute and chronic.

Acute.

May proceed from a variety of causes : irritating character of food taken ; impure water ; morbid nature of the secretion poured into the intestines ; atmospheric influences, heat, moisture, cold, contaminated air ; irritant poisons ; retained feces ; worms ; reflex irritation, as in cutting teeth ; mental motion, as fear, etc., etc.

Symptoms.

Thirst, griping pain in the bowel of all grades of severity ; pallor ; slight debility ; and frequent fluid discharges from the bowels.

Treatment.

In many cases diarrhœa should not be checked abruptly, and indeed in some, temporarily at least, it should not be interfered with.

Our first endeavour should be to ascertain the cause. In the ordinary varieties of diarrhœa, such as we feel to know are not the accompaniment of some special disease, such as that accompanying typhoid fever, may be very successfully treated with some one of the following :

Tinc. opium,	
“ camphor,	
“ rhubarb,	
“ capsicum,	
“ peppermint, of each,	1 ounce.

Of this ten (10) to thirty (30) or even sixty (60) drops, in hot sweetened water every half hour until relieved. I have

found almost immediate relief in this, in my own case many times, when other remedies had failed. It is particularly grateful in its effects where there is much pain.

Pulv. rhubarb,	. . . . .	15 grains.
Henry's magnesia,	. . . . .	20 "
Cinnamon water,	. . . . .	1½ ounces.
Comp. tinc. of lavender,	. . . . .	1 drachm.

At one to two doses is very excellent.

Oil of annis,	. . . . .	1 drachm.
" " cloves,	. . . . .	1 "
" " cajaput,	. . . . .	1 "
Alcohol,	. . . . .	2 ounces.

Take a teaspoonful every three to six hours, is a remedy in great favor with many practitioners in cases of diarrhœa, cholera morbus, and other like exhausting discharges.

The old army remedy that I have many times taken, and dosed out many times to others, that does its duty faithfully and well is :

Kino, camphor, capsicum and opium ; of each five (5) grains. Make into eight to twelve powders, and take one after each operation, or one every two hours, until the diarrhœa is subdued.

Again comes my oft repeated remedy.

Chloroform,	. . . . .	2 drachms.
Simple syrup,	. . . . .	2 ounces.

A teaspoonful every hour.

Another old remedy is :

Castor oil,	. . . . .	½ ounce.
Turpentine,	. . . . .	20 drops.

To be taken at a dose generally. One-half to one-fourth that amount will answer.

One of the best remedies I have ever used, and it has been a family heir-loom for generations, in constipation, or in alvine, or uterine fluxes, or for cuts or bruises, if applied externally. It is called, in the family, "hot drops" and is known as "balsam of all balsams."

Spirits of wine,	. . . . .	3 ounces.
Guaiac resin,		
Styrix resin,		
Benzoin resin,		
Balsam of tolu, each	. . . . .	2 drachms.

Take ten (10) to sixty (60) drops on sugar, place it well back in the mouth, and close the mouth until it dissolves.

Chronic.

Chronic diarrhœa is often very difficult to control, defying the most intelligent efforts to subdue, or bring it under control.

I shall only offer a few remedies, believing as I do, that it should be treated by a physician.

Acetate of lead,	. . . . .	24 grains.
Opium,	. . . . .	6 "

Mucilage in sufficient quantity to make twenty-four (24) pills. Dose, one (1) pill, three times a day.

By some we are advised to take, several times daily, a teaspoonful of brandy in sweetened water.

The diet should be carefully attended to. Milk and lime water are indicated, and are very nourishing. Where there is much debility, make use of the following:

Quinine,	. . . . .	$\frac{1}{2}$ drachm.
Pulv. catechu,	. . . . .	1 drachm.
" opium,	. . . . .	15 grains.

Make into thirty-two (32) pills. Dose, one (1) pill thrice daily.

Place the patient on milk diet, and keep him there for some time and give as directed :

Sulphate of zinc,	.	.	.	.	1 drachm.
Pulv. opium,	.	.	.	.	$\frac{1}{2}$ drachm.

Make into thirty-six (36) pills, and give one (1) after each bad action of the bowels. Of this treatment, Dr. J. M. Heard, of West Point, Miss., says : " I have been using this or something similar, for twenty odd years, and if I did not originate it, I do not know where I got it, without a failure in private practice ; and during the war I used it with very gratifying results, at Forts Morgan and Gains, and in general hospital in Mobile, Ala.

Homœopathic Treatment.

Dulcamara.—For diarrhœa which is caused by cold ; when the evacuations are watery, greenish or yellowish ; worse at night with slight pain. It may be followed by bryonia.

Aloes.—Violent stools ; the whole body becoming hot during evacuation, with a feeling of sickness at the stomach, or in the region of the liver ; the evacuations have a very putrid smell and are not very profuse or watery.

Ipecac.—Evacuations of thin mucus, or frothy, fermented, or yellow stools, with considerable pain in the rectum ; stools with a white substance scattered through ; paleness of the face ; great prostration.

Chamomilla.—Bilious, watery, or slimy diarrhœa, the evacuations resembling chopped straw, and smell like rotten eggs ; coated tongue ; swelling of the bowels.

Rheum.—Sour smelling evacuations, with contractive colic in the bowels ; shuddering when evacuating.

Mercurius.—Suitable for almost any diarrhœa, especially when preceded by griping in the bowels before, and burning in the anus after stool.

Colocynth.—Bilious or watery diarrhœa, with severe cramp-like pains

Podophyllin.—Diarrhœa, with cramp-like pains in the bowels, light colored and offensive stools, evacuations frothy and slimy.

Pulsatilla.—Diarrhœa from indigestion, foul tongue.

Bryonia.—Diarrhœa from heat of summer.

Magnesia.—Diarrhœa with evacuations resembling the scum of a frog pond.

Arsenic.—Evacuations burning, with severe colic pains. May be given in alternation with *veratrum*, or in alternation with *carbo veg.* when the diarrhœa is putrid, and consists of indigested matter, or watery, slimy, burning evacuations.

Nux Vomica.—When there are frequent and scanty evacuations.

China.—Looseness from indigestion, particularly after partaking of fruit.

Dulcamara.—In diarrhœa from cold attended by colic or cutting pains in the region of the naval.

DYSENTERY.

Were I to ask; what is dysentery? it would prove a much easier question to ask than to answer. The common and acceptable opinion, however, may be thus briefly answered. It is an inflammation involving the mucous and muscular coats of the large intestine (the colon), that its process consists of a specific inflammation of the solitary glands situated within those coats.

Varieties.

Acute and chronic; sthenic (vigorous), and asthenic (without vigor); endemic (prevailing within a circumscribed limit); and epidemic (prevailing over an extensive district);

tramous or tuberculous (scrofulous) ; and bilious. Into the acute and chronic, measurably, are merged the other varieties.

Acute dysentery, because of its frequency, painfulness and fatality, has occupied a large share of the attention of medical writers since Hippocrates, over fifteen centuries ago, first described it under the designation of a greek word (spelled in english) "*dusentaria*," essentially the same disease which has been known ever since by that name.

Symptoms.

Every attack of acute dysentery is preceded by disordered digestion and constitutional disturbance, indicated by loss or capriciousness of appetite and furred tongue, constipation alone or alternated with looseness, dryness of skin, occasional chilliness and general malaise with slight rise of evening temperature. More or less pain is always present in the lower half of the abdomen, with soreness or tenderness on pressure. Mucus appears in the stool at the commencement of the dysenteric attack in glairy, translucent sometimes yellowish masses, somewhat resembling the white of an egg to the naked eye. These masses possess considerable cohesion, after a time it becomes more opaque, whitish and yellowish, a muco-pus ; or it may lose its stringy quality and become yellow, and miscible with water, then it is pus. These morbid changes may arise from neglect, or to constitutional defect in spite of the most careful therapeutic and hygienic management, or to intensity or quantity of the specific poison ; the disease is not cured by resolution (dispersion), the ulcerative process is developed. The whole of the solitary glands engaged are destroyed, sometimes perforating the bowel, giving rise to peritonitis and thus carrying off the patient. There is also small and bloody or blood marked passages. Severe and protracted cases may be considered as first going through the inflammatory then the ulcerative stage.

Simple acute dysentery is commonly open, active and inflammatory without early or great prostration. It is an open

question as to whether it may be epidemic, or contagious, or not; it is acknowledged endemic, and in this form is generally asthenic. It is considered essentially a disease of hot climates, and is very common in this country in summer and fall. As to its duration or whether the acute will pass into the chronic is hard to foretell. Ordinarily it does not, often ending within a week in recovery. In severe cases, however, they may be even of shorter duration, death closing the malady. In some of these severe cases, attack and collapse succeed each other with the virulence, and rapidity and malignancy of epidemic, asiatic cholera, nausea and vomiting are of frequent occurrence, though some cases run their course without the first and many without the second.

The intense expulsive efforts not infrequently cause more or less prolapsus (coming down) of the anus, this not merely in children among whom it most readily occurs, but likewise in adults. Painful urination results from the concentrated character of the urine, as also from inflammation of the mucous membrane of the bladder, especially in the vicinity of the neck of the bladder. Various nervous disturbances accompany dysentery; loss of sleep, resulting from the frequency of stools, picking at the bed clothes; contracting and twitching of the muscles; delirium; convulsions and hiccough, the latter very often the forerunner of a fatal issue. The skin, in these unfavorable cases, becomes clammy, features and eyes shrunken, body emaciated, appetite suspended, thirst great and distressing, tongue dry and brown, pulse feeble and running, the stools extremely offensive, bloody, slimy or watery; the sense of feeling becoming so blunted that action of the bowels is had without much pain, often without effort or knowledge on the part of the patient.

Chronic dysentery is sometimes the result of acute dysentery, in spite of the most appropriate management. We rarely see chronic dysentery without its shadow-chronic diarrhœa. In this form we have nearly always ulceration of the rectum or color, or both. Whatever the causes from which chronic dysentery results, the local and constitutional

symptoms will be the following character. The most prominent local symptoms are gripings, flatulence, uneasy or painful sensations in the stomach and bowels, and liquid, variously disordered, stools, consisting of the products of digestion, which is impaired by the intestinal disorder, mingled with the morbid discharges from the diseased mucous membrane. Constitutional symptoms are those resulting from insufficient nutrition; are steadily progressive debility and emaciation, and often accompanied by a hectic febrile movement.

The stools vary extremely in frequency and character. Belchings, rumblings in the bowels, and escape of wind are to the patient very annoying. Distention of the abdomen often occurs in the course of this trouble, especially if there are intervals of constipation, and also a short time before the fatal issue. An examination will often show a tenderness on pressure along the line of the large intestine, sometimes on one side, sometimes on the other, and at times along the whole line, while again there may be general abdominal tenderness indicating, not infrequently, the presence of local or general peritonitis. Appetite is almost always disordered; sometimes diminished, in extreme cases a positive loathing of food; at times an unusual desire, and again capricious. The tongue is seldom natural, at times, simply coated with more or less thick, whitish fur; at others pale, smooth, swollen, indented on the edge by the teeth, a very characteristic condition in those cases where scurvy is present. Approaching the close of fatal cases, for either form of dysentery may prove *fatal*, the tongue may assume the brown and dry type of typhoid, or putrid typhus, fever; or again it acquires a bright red color and appears smooth and shining like a piece of raw beef. The patient gradually becomes extremely emaciated, worn out through increasing debility. The pulse is, as a rule, soft, compressible and but very moderately accelerated so long as the patient is quiet, but upon the slightest exertion it may develop great rapidity. Palpitation of the heart is frequently complained of. Prolapsus ani is a very troublesome symptom in chronic cases. The complica-

tions in acute and chronic dysentery are many and varied in character. Owing to limitation of space it will be impossible to present them.

Treatment.

It is of the greatest importance that active treatment be at once commenced, as in the acute form, it becomes much more protracted and dangerous by delay in the neglect of treatment in the early stage. If the tongue is not foul, and the attack does not begin with retching and vomiting, an emetic of twenty (20) to thirty (30) grains of ipecac may be administered, or should emetic not be indicated, a dose of two (2) ounces of castor oil with ten (10) to fifteen (15) drops laudanum may be given. Blue mass, $\frac{1}{4}$ to $\frac{1}{2}$ grain; ipecac one (1) grain may be given in pill form. After a day or two or sooner if the case be urgent, camphor may be added to pill, or after the bowels have been cleaned out, one of the following pills may be given every four to six hours.

Opium,	. . . . .	6 grains.
Ipecac,	. . . . .	24 "
Calomel,	. . . . .	12 "
Mucilage,	sufficient to mix the mass.	
Make into two twelve pills.		

Anointing the abdomen with turpentine, then covering with a flannel cloth will oftentimes afford great relief; or we may substitute for the pills, containing the blue mass, opium for the mass; afterwards omit the ipecac, continuing the opium and camphor as often as the nature of the case may demand. If the disorder is not checked, acetate of lead, one (1) to five (5) grains with $\frac{1}{2}$ grain of opium, to one grain, at a dose, or $\frac{1}{6}$ to $\frac{1}{4}$ grain of acetate of morphia.

Dr. John G. Earnest reports in the *College and Clinical Record*, a case of very great interest, where the patient was cured of a very violent attack of acute dysentery by the use of hot water injections. A No. 10 catheter was passed up to

the sigmoid flexure of the rectum. At first tepid water was slowly thrown in with a rubber syringe. The temperature was gradually raised until it was as hot as could be born without pain by the hand immersed in it. The rectum soon became tolerant and passive so that it was deemed advisable to introduce a second catheter beyond the sphincter ani, to prevent undue distension. The operation was kept up for thirty five-minutes. Soon after the withdrawal of the catheter the patient fell into a natural sleep that lasted four hours. A few hours afterward the symptoms began to return gradually, when a second injection of *hot* water lasting half an hour was given, just as in the first instance, at the same time $\frac{1}{6}$ of a grain of morphia sulphas was injected under the skin. This plan was adhered to, the patient having three injections per day for a number of days. Convalescence followed without intervention of any untoward event. This was not the only case reported with excellent results following the same treatment. Lately the old treatment of giving every half an hour, half a drop of the liquor hydrargyribi-chloridi, (B. P.) Where there is much pain and griping it has given great relief; the first dose relieving the pain; in a few hours the bearing and straining is relieved, and in a few days the stools assume a healthy appearance.

Dr. Harris, in the *Indian Medical Gazette*, states that fifteen (15) grains of benzoate, ammonia or soda, three or four times a day, are of the utmost value in the treatment of acute or subacute dysentery. The *Union Medicale* recommends that—

Subnitrate of bismuth,	. . . . .	$\frac{1}{2}$ drachm.
Powdered gum arabic,	. . . . .	$\frac{1}{2}$ “
Warm water,	. . . . .	2 ounces.

be injected once to thrice daily, that the tinct. of opium may be added, and that in every case an injection of warm water should precede in order to remove the intestinal mucus. Dr. D. M. Barkley, of Caseyville, Ky., reports in the *Medical*

Brief, that in a very serious case under his treatment he injected thirty grains of hydrate of chloral, in two ounces of water, into the rectum, and held it there by pressure upon the anus for thirty minutes; at the end of that time the patient went to sleep, and slept an hour; bowels then moved; action bloody and mucous-purulent. Injection repeated and retained without difficulty for three hours; a third was given and retained for twelve hours; at the end of which time all the blood and mucus had disappeared, and the dysenteric symptoms had subsided. He then gave plenty of quinine and morphine, and in three days discharged his patient cured. He directs that the injection be thrown as far up the rectum as possible, retaining pressure at the anus, to prevent rejection, for twenty to thirty minutes. Repeat every three or four hours until success crowns your efforts. A very pleasant and efficient remedy in the early stages is—

Fl. ext. blackberry root,	3 drachms.
Aromat. syrup of rhubarb and potass,	1 ounce.
Fl. ext. hamamelis (witch hazel),	3 drachms.
Tinc. opium,	2 “

For an adult, one teaspoonful in a swallow of water every two, three or four hours, as may seem necessary. Dose for a child, five drops for each year of its age repeated as above. Adult doses may be increased if desired. The *Indian Medical Gazette*, reports 151 cases cured by the use of aconite. The following I found in a report from G. W. Jennings, M. D., of Tonica, Ill., and is the formula that has afforded me the greatest degree of satisfaction of any:

Tinc. aconite root,	5 drops.
Water,	4 ounces.
Give a teaspoonful every hour.	

Bi-chloride of mercury,	$\frac{1}{2}$ grain.
Water,	4 ounces.
Give a teaspoonful after each operation of the bowels.	

These are doses intended for adults. If there is no blood in the stools, give the aconite once in fifteen minutes or half an hour, a few times before commencing with the bi-chloride and if the fever is high, give the aconite oftener than once an hour but not in larger doses.

Diet.

Diet for patients must be bland. Milk diet is by far the most desirable. Chicken broth and arrowroot. Slippery elm tea makes a very excellent drink; ice may be taken slowly. Flaxseed tea alone, or with laudanum, or laudanum and starch as injection are in common use.

Chronic.

Chronic dysentery is treated in much the same manner as in the acute. If vomiting is frequent, mustard poultices over stomach. If stomach is distended with wind, an injection or injections each containing two (2) drachms of turpentine. Warm baths, turpentine fomentations and injections are much used and relied upon. If the liver is torpid :

Mercury with chalk,	. . . . .	3 grains.
Dover's powders,	. . . . .	8 "

Mix and make into three pills.

Blue pill,	. . . . .	3 grains.
Opium,	. . . . .	1 grain
Ipecac,	. . . . .	1 "

Make into two pills.

Either the first three or the last two may be taken at night.

During convalescence, or after all inflammatory symptoms have been subdued, and an exhausting discharge from the bowels continues, the following may be found useful :

Prepared chalk,
 Pulv. gum arabic,
 Sugar, each $\frac{1}{2}$ ounce.
 Cinnamon water, 8 ounces.
 Syrup of poppies, $\frac{1}{2}$ ounce.
 Tinc. catechu, 3 drachms
 Dose, two tablespoonfuls every six hours.

Hope's mixture: (Acid nitric, one (1) fl. drachm; tinc. opium, forty (40) drops; cinnamon water, eight (8) ounces. Dose, a tablespoonful.)

Bilious dysentery.

As a distinctive variety, it is not uncommon. It is that form in which the disorder of the liver is the prominent feature; the discharge presenting an excess of more or less altered, irritating bile. It is more intractable than the simple acute form, and if it lasts over ten days, may be very hard to cure. The treatment in the acute form is applicable to this form; although it does not respond so readily to treatment.

Treatment.

The patient should not be allowed to sit up, but be kept very quiet. For food, use flour porridge well boiled, rice water, arrow root, sago. When recovering, a little mutton broth may be allowed.

Homœopathic treatment.

Aconite.—Pain in the bowels; bilious or thin watery evacuations, mixed with mucus and sometimes streaked with blood; pains in the head, neck and shoulders; pulse strong and fast.

Arsenicum.—Suitable for cases where the stools pass involuntarily, and have a putrid smell; the patient is very weak; burning pain in the bowels; breath cold. May be given either alone, or in alternation with *carbo veg*.

Belladonna.—When aconite fails to relieve, and when

there is dryness of the mouth and throat ; tenderness of the bowels ; tongue coated and red at tip.

Mercury.—This is the most important remedy in dysentery, and is useful in all stages, particularly when there is violent straining before and after evacuations, as if the bowels would force themselves out ; a discharge of light blood sometimes streaked with mucus, or greenish matter, after much straining, sometimes the evacuations resemble scrambled eggs ; violent colic ; nausea ; shivering ; exhaustion ; trembling ; cold perspiration of the face ; aggravation of pain at night. May be given in alternation with colocynth, when there are severe griping colic pains, or in alternation with aconite or belladonna, if there is fever.

Chamomilla.—Sometimes useful after aconite, when there is still fever or headache, coated tongue, nausea, and thirst. Especially useful when the attack is caused by suddenly checked perspiration.

Colocynth.—When there is severe pain in the bowels and the discharges are mixed with green matter, or else are slimy and mixed with mucus and blood. May be given in alternation with mercury.

Podophyllin.—Cramp-like pains in the bowels ; stools light colored and very offensive, or frothy and mucus.

Ipecac.—Especially of benefit when the disease occurs in the fall, or when the mucus or slimy passages are afterwards streaked with blood. May be given with advantage in alternation with petroleum.

Nux vomica.—Small and frequent discharges of bloody slime ; intense heat ; great thirst ; burning, cutting pain about the navel. May be given in alternation with opium.

Sulphur.—Useful in obstinate cases ; an occasional dose.

Administration of remedies.

Dissolve twelve globules in twelve teaspoonfuls of water, and give a teaspoonful every half hour, hour or two hours, according to the urgency of the symptoms. As the patient grows better, increase the intervals between the doses.

For chronic dysentery, a dose of the remedy three times a day is sufficient.

Accessory treatment.

In very acute cases, not more than a teaspoonful of water must be given at one time; ice may be kept in the mouth as required.

A tepid compress over the abdomen should be worn night and day. When the case permits a warm sitting bath to be taken for a quarter of an hour, twice or three times a day. A hot bath is sometimes of great benefit, but not where the patient is very debilitated. Hot fomentations should be resorted to, when the pain in the bowels is excessive. All that passes from dysenteric *patients should be received into glazed vessels* containing a little Condyl's fluid, taken away immediately and buried to a considerable depth.

In malarious situations thorough change of air is often absolutely required to complete cure, and in tropical countries, a voyage to a more temperate climate.

SUMMER COMPLAINT.

Summer complaint, a misnomer, applied indiscriminately to acute diarrhœa, simple acute dysentery, to cholera morbus and to cholera infantum, otherwise known as summer complaint of children. "Diarrhœa occurring in summer—often applied to dysentery and cholera infantum. With some it means cholera infantum only." Its symptoms are invariably those of acute diarrhœa, simple acute dysentery, cholera morbus or cholera infantum as may be determined by the locality and manner of the attack. In truth, however, if it is confined to the large intestine it is dysentery and should be so treated; if there is looseness of the bowels, attended with griping pains, fever and thirst, the diseases located in the small intestine, then it is acute diarrhœa and ought to be considered and cared for as such; if the attack is sudden, although usually preceded by sensations of uneasiness, colicky pain in

the stomach, nausea, vomiting, purging, with the severe cramps and pains incident to vomiting, the vomiting and purging occurring in paroxysms, then it should be called cholera morbus and receive attention as such ; if the patient attacked be four or five years old or younger, especially younger, if the attack usually occurs in or between the months of June and October, with first, a diarrhœal discharge, the stools becoming sometimes of a watery, colorless consistency, again, of a greenish yellow, the pulse quick, head and abdomen hot and the limbs cold, we have in this, in its less active but more perisistent form, a malady that may, perhaps, be called, if we can thus differentiate two diseases out of one, Summer Complaint, otherwise we will have to class it with the more active form of the same trouble, and call it by the name which it has hitherto been known—cholera infantum, and give medical attention as such.

This malady has been, or will be treated of under the name of the diseases to which in its various aspects it properly belongs, except in the appending of a few formulas which are of such a character as to serve the part of general utility in these cases.

Brandy (good),	. . . . .	6 ounces. .
Fluid extract of rhubarb,	. . . . .	I “
Essence of peppermint,	. . . . .	$\frac{1}{2}$ “
Fluid extract of leptandrin,	. . . . .	4 drachms.

Mix. Then take four (4) ounces of baking soda and dissolve in $\frac{1}{2}$ a pint of water, strain and add to this liquor one pound of granulated sugar ; dissolve into a syrup ; when cold, mix all together. Dose, from half a teaspoonful, dilute with breast milk or warm water for the nursing babe, to a tablespoonful for an adult after each action of the bowels or every two hours, until the discharges assume the color of the medicine, then every four hours for one or two days, gradually dropping off to three and two doses a day until the last vestige of the disease has disappeared. It is

a Neutralizing Cordial; known as such. I have used it for years as a safe, reliable remedy, and from long experience, I can give it my unqualified endorsement.

Sub. nitrate of bismuth,	. . . . .	30 grains.
Peppermint water,	. . . . .	2 ounces.

A teaspoonful frequently—very excellent.

Ammonia aromaticum,	. . . . .	1 drachm.
Magnesia optim,	. . . . .	1 “
(Baking soda may be used instead of the magnesia in like quantity.)		
Aqua menth., pip.,	. . . . .	4 ounces.

Shake the bottle well, giving a teaspoonful every one to three hours.

For small children the following is very reliable:

Lime water,	. . . . .	2 ounces.
Comp. Spirits of lavender,	. . . . .	1 drachm.
Aromat syrup of rhubarb,	. . . . .	1 “
Tinc. opium,	. . . . .	10 drops.
Teaspoonful each hour.		

The eminent Dr. Roberts Barthalow, Dean of Jefferson Medical College, Philadelphia, recommends the following in this “summer dysentery and diarrhœa of teething children.

Ipecac,	. . . . .	12 grains.
Sub-carbonate of bismuth,	. . . . .	1 drachm.
Saccharated pepsin,	. . . . .	1/2 “

Make into twelve powders and give one in milk every two hours.

The extract of blackberry has in some cases been of use; while one obstinate case of diarrhœa was cured by the

patient, carrying dried blackberries in his pocket, and eating them from time to time as he thought of them. The following is a very easy made and a palatable family medicine for children.

Take a sufficient quantity of ripe blackberries. Put them into a sieve, placed over a large broad-pan, and with a clean potatoe masher, or something of the sort, press out all the juice. Or having bruised them first, put the blackberries into a linnen bag, and squeeze out all the juice into a vessel placed beneath. Measure it and to every quart of the strained juice, allow half a pound of powdered loaf sugar, a heaped teaspoonful of powdered cinnamon, the same of powdered cloves, and a powdered nutmeg. Mix the spices with the juice and sugar, and boil altogether in a porcelain kettle, skimming it well. When cold, stir into the above quantity half a pint of fourth proof brandy. Then bottle it for use. This is a good family medicine, and is beneficial in complaints incident to warm weather.

It should be administered at proper times, (at proper intervals,) from a teaspoonful to a wineglassful, according to the age of the patient.

CHOLERA MORBUS.

Cholera morbus is a disease described sometimes by English writers as *English cholera*, by others as *sporadic cholera*. It is common to warm climates, and characterised by vomiting and purging; neither brought on by irritant poisons, nor by an epidemic influence; griping, coldness and cramps of the extremities, sudden atmospheric changes, indigestible substances taken into the stomach, excess of food, or a sudden checking of perspiration may superinduce cholera morbus.

Symptoms.

First flatulence; sour belchings; often but not always, pain in the stomach and bowels; nausea; vomiting of greenish or yellowish fluid; rejection of food or drink; diarrhœa,

with brownish or yellowish stools; debility and coldness; little or no fever. If the attack is not immediately relieved it becomes aggravated, cramps become severe, the vomiting and purging assume more of a watery character, and if the malady be not now soon checked, prostration and coldness lead to collapse.

Treatment.

The immediate application of a warm mustard poultice over the abdomen, but not necessarily allowed to blister. The formula containing the ammonium aromaticum and magnesia, given in the formulas for summer complaint is just the thing in these cases. Few instances are there in which it will fail to relieve in an hour or two if it is given early. Use the soda instead of the magnesia, if the purging is urgent and exhaustive. This chalk mixture may be used repeating the dose often :

Chalk mixture,	. . . . .	3 ounces.
Gum kino,	. . . . .	$\frac{1}{2}$ drachm.
Brandy,	. . . . .	1 ounce.

Rub the kino and brandy together in a mortar until the kino is dissolved, then add the different ingredients together and give at a dose, one tablespoonful every two hours, oftener if necessary. Extreme prostration calls for active stimulation, and nourishment must be given per rectum, in sufficiently abundant quantity to sustain life, if rejected by the stomach. Bromide of potassium may be used in five (5) to ten (10) grain doses, to relieve cramps, if excessive.

Curtis Smith, M. D., in the *Detroit Lancet* reports: "A few days since I was called to a case of extreme cholera morbus. Being engaged, I did not reach the case for several hours. He was in as complete a state of collapse as we ever see in a genuine cholera case. I gave atropia sulph., one-thirtieth ($\frac{1}{30}$) of a grain. In a few moments the extremities were warm, the skin flushed, pain, vomiting, purging all

gone, and the patient had an assured feeling of recovery instead of one of impending death. There was atropinism for some hours, which did no harm beyond the unpleasantness it caused." The Dr. reported a very severe case of diarrhœa treated in like manner, with like excellent result.

Homœopathic treatment.

Ipecac.—Especially when the vomiting is violent. May be given at the commencement of an attack in alternation with veratrum. If there is severe pain in the bowels, frequent and small evacuations, with severe pressing down pain, give nux vomica in alternation with ipecac.

Arsenicum.—Violent diarrhœa of watery, bilious, slimy, greenish, or blackish substance; great prostration; cold extremities; violent thirst; tongue and lips dry and cracked, and bluish; burning sensation at the pit of the stomach. May be given in alternation with veratrum.

Veratrum.—For the same symptoms as arsenic, together with cramps in the calves of the legs; pale countenance, very great prostration, shrivelled appearance of the skin.

Colocynth.—Violent colic, as if the bowels were jammed

Cuprum.—When there are severe spasms of the limbs; cramps in the fingers and toes.

China.—When the attack is caused by indigestion; also the debility after a severe attack.

Administration of remedies.

Of the selected remedy dissolve twelve globules in twelve teaspoonfuls of water, and give a teaspoonful every ten, fifteen or thirty minutes according to the severity of the attack. After having given several doses, and there is still no relief, select another remedy. The intervals between the doses should be lengthened as the patient grows easier. The diet may consist of such things as oatmeal gruel. Cold water should be used as a drink. The patient should be careful to avoid all vegetables and other articles which will disagree with his stomach.

Care should be taken to avoid excess of all kinds, late hours, exposure to night air, melancholy thoughts, or fear, all of which are predisposing causes to attacks of the malady

CHOLERA, ASIATIC.

In whatsoever I may write, concerning this dread scourge, I shall make no pretence as to experience or originality, but will present a compendium, as it were, from sources proven and accepted as the highest standard authority on the disease, giving brief clinical report of cases that occurred in various parts of the country, believing thereby to be able to perform the greater amount of good for the people, leaving the discussion of the many points of variance in its etiology, etc., to the profession, to determine among themselves at their leisure. I am not here to discuss those features of the disease, quite to the contrary. The main object of my present endeavor is to present diseases, their symptoms, treatment, etc., in such a plain and practical common sense manner, that all who read may so fully comprehend as to be able to promptly put into practice the information here presented, and be benefited thereby, should occasion ever demand. It is known that cholera exists as an epidemic at the present time in the old world—that malignant epidemic that travels to kill relentlessly, drawing into its capacious maw of death, youth and age, decrepit and strong. A natural feeling of apprehension prevades in our midst, that this awful and desolating plague may turn its course hitherward, history repeating itself in grief burdened hearts, decimated homes, and the total obliteration of now happy firesides. God grant that the pestilential hand be stayed ere it reach our shores. Let us not be alarmed at its coming, but exercise the part of wisdom in preparing ourselves, that we may be the better able to resist the attack of the unwelcome visitor, should he present himself at our doors. I shall not attempt a history of its epidemics, neither of its origin, save to say, that it has over and over again, proven

itself, born of squalid want, bigoted superstition, of a licentiousness that would appall and astound the united bordeller of civilization; vitalized by the intense heat of a tropical sun, acting upon masses of organic matters, in a land where sanitary regulations and drainage are unknown quantities; the result of the luxurious vegetation and nastiness of human animals; cradled in the land of the Ganges, and growing strong under the suns rays, soon obtains recognition the world over.

Cholera defined.

Asiatic cholera is a specific disease of the stomach and intestines, and arises not from a combination, but a specific cause. It is an acute infectious disease, though its infection is communicated differently than either is small-pox, scarlet fever or diphtheria. Neither inoculation nor contact with a cholera patient will produce the disease. The poison must enter the alimentary canal of a person in whom all the conditions are ripe to receive the contagion. A decomposition in all the discharges of a person affected with the disease occurs, and the product of this decomposition is the specific cholera poison. This poison is developed, and becomes virulent only at a certain period. Both before and after this period there is no poison, and the latest authorities claim that this period of virulent activity is limited to a period when small moving bodies called vibriones, visible only by the aid of a microscope, are seen moving through a drop of the liquid. If the gastric juice possesses its normal acidity when the poison comes in contact with it, it is destroyed; if not, then the poison meets only the alkaline fluids, and is able to reproduce itself. The cells originally swallowed are multiplied. They possess the peculiarity of fastening upon and destroying the little epithelial cells which cover the mucous membrane that lines the digestive apparatus. Vast patches of the intestinal epithelial are stripped off, delicate blood-vessels exposed, and from these uncovered vessels all that portion of the blood which is fluid enough to find its

way out through the remaining walls flows out, and it is not to be wondered at that a fatal loss of water occurs at any time.

Many of the symptoms of the disease are well known; a few of the most prominent may be spoken of here and considered more at length hereafter. First comes a painless, almost insensible, looseness of the bowels. A feeling of weariness and indisposition, which lasts one to five days, greater fatigue ensues, and then it is that the poison is reproducing itself, and medical treatment is of the utmost importance. The discharges are the well-known rice-water discharges of cholera, sticky, glutinous matter, with a sweetish, sickening smell. Nausea now gives way to vomiting, the patient can no longer leave his bed, the surface of the body is cold to the touch. The skin on the face and fingers becomes shriveled like that upon the hands of a washerwoman, and can be gathered up in the fingers. Water is demanded, but vomited off. The eyes are glassy, the voice loses its volume and becomes husky and low. The pulse well-nigh disappears, while a profuse perspiration bathes the body.

The stomach feels cold, and the patient longs, like Falstaff when pulled out of the Thames, who said to Bardolph: "Come, pour some sack; for my belly's as cold as if I had swallowed snowballs for pills."

Children look weazen-faced and aged, the breath comes with difficulty. The symptoms become more intense, the collapsed state is reached. Cramps may set in, which are frightful to behold, or the patient may quietly sink to eternal sleep without an ache or pain; motionless and lifeless, quietly sinking, wasting away.

How it is spread.

Water is most frequently the medium through which it is diffused. In the East, where no care is displayed to provide for pure drinking water, the disease is almost invariably diffused by its agency. The air may diffuse it. Gases arising from a vault or pit can carry up the poison,

and being inhaled is swallowed with the saliva. The atmosphere of a room which has been closed without cleaning or ventilation, after the ending of a case of cholera, may induce the disease. Exhalations from sewers or drains, or from the soil polluted by leakage, or from garbage heaps in which there is cholera poison, may charge the atmosphere and induce it. Food may communicate it when prepared by persons affected. Milk may be polluted from dilution with infected water, or from pans which have been washed in the water. Winged insects may corrupt fruits or vegetables coming fresh from the discharges of cholera patients. Fabrics used by the patients may contain the poison and induce it. Yet the cholera poison may enter the system of a person perfectly healthy and in whom the gastric juices have their normal acidity, and is killed and passes off. Yet entering the systems of others whose gastric juices are not normally active, and the poison assumes an aggressive character, and rapidly develops among the alkaline fluids. Hence those whose systems are vitiated either by other diseases, or whose nervous forces are depressed either from fatigue, fear or sensuality, are especially liable to it.

It can be prevented.

Science has not yet discovered what will surely destroy the virulent activity of cholera poison, but the occurrence of the epidemic can be prevented when the sanitary condition of the community is good. Cleanliness is indispensable. The removal of all decomposing organic matter is imperative. Houses must be thoroughly ventilated and cleansed, out-houses, bath-rooms and water closets isolated, and the ventilation of all apartments having sewer connections studiously attended to. Personal cleanliness is doubly necessary during a cholera epidemic. Daily baths are advisable. The greatest care should be used in regard to all drinking water. Suspected water should be actively boiled and filtered before use. Acid drinks indulged in each day. Lemon or lime-juice freely used. The surface of the body warmly

protected, and any thing which suddenly checks perspiration avoided ; vegetables and fruits should be carefully washed in pure water and only eaten when fresh and ripe.

How it is treated.

The remedies that have been suggested are innumerable. Bleeding, cold water, brandy, ammonia, musk, carbonic acid gas, tobacco, injections, calomel, essential oils, burnt cork, opium, mustard, cataplasms are a few only. The physicians of Mataro, declare that of 1,000 persons attacked and treated with carbonic acid gas only about sixty died. Many physicians have set to work to stop the drain of fluid from the blood, forgetting that, if the theory is true, the fluid in so foul and poisonous a state could not do the blood much good. The cry was for astringents and sedatives, and the worst possible effects followed. The loss of life under it in the outbreak of 1854 was so terrible that Dr. George Johnson, of Kings College Hospital, returned to the old-fashioned purgatives. Castor-oil was the drug he chiefly used. So many of his patients recovered that he published an account of his success in the Medical Times. The gist of this theory was in regard to the collapse—that is, when the patient lies utterly exhausted—so utterly that the processes by which nature tries to expel the poison cease. Then the patient dies. If the discharges continue, there is a gleam of hope—that is, “if the vital movements can be kept up till the process of expulsion is complete, and there has been no permanent damage of vital parts, the poisoned man recovers.” Dr. Johnson claims that “the state of choleraic collapse results from a peculiar current of the flow of blood through the lungs, occasioned by a morbid poison.” He maintains that the poisoned blood so excites the contractile wants of the minute arteries of the lungs as to greatly impede the circulation through these organs, and in some cases to arrest it entirely. The arrest is not due to the thickening of the blood, but to the narrowing of the channels through which the blood passes. A post mortem on the body of a person who

has died of cholera shows the blood to be black, which is caused, not by the fact that the serum has been withdrawn from it, but that it has not been exposed in the lungs to the current of air, which turns it red.

It also discloses the fact that the left chambers of the heart, whose duty it is to receive the blood from the lungs, are left nearly or quite empty. The blood somehow has stopped before reaching the place where, in the natural order of things, the air of heaven coming upon it would redden or freshen it. He says: "The minute arteries throughout the body, having their walls mainly composed of circular contractile fibers, possess the power of regulating the blood supply to the various tissues and organs. They are self-acting stop-cocks. The rapid changes in the color of the face under the influences of mental emotion—the pallor of fear and flush of anger or shame—are due to the regulating influence of these arterial stop-cocks." Restore, then, the proper action to these stop-cocks, or, in other words, get rid of the poison as soon as possible, and the patient is well. How opiates and astringents, which imprison the venom or soothe the natural outlets of the body into a deadly slumber can accomplish this, is hard to understand. Chalk, laudanum and brandy pen the poison up, yet many old practitioners employ them. This much can be said of this treatment: Drs. McClerg and Robertson gave the eliminative treatment a fair trial at Liverpool, and it was far more successful than the opposite plan at all stages of the disease. The mortality from cholera in ninety-one cases treated by opiates and astringents was 71 per cent. In 167 cases treated by castor-oil, without stimulants, the mortality was 30 per cent.

To enter upon even the most concise synopsis of the phenomena ascribed to cholera, would occupy more space than can possibly be allotted to it in this work. One of the "Grand Phenomenon" of Dr. G. T. Colling, I know you will pardon if I give it: "The historian mentions, and with profound gravity, what he calls a remarkable circumstance—

a grand phenomenon ;' viz. the wonderful fertility of women after the cessation of the pestilence. Marriages were almost without exception, prolific, double and treble births were more frequent than at other times.

Wonders, I'm sure, will never cease,
Young and old women still increase,
Secundum naturam, the race ;
Children, like musrooms, spring apace.

Other vagaries, as each epidemic passed, served as interesting topics in connection with the visitation.

It is a fact well illustrated in the history of epidemic scourges, that fatal attacks of pestilential maladies have been engendered by fear. Warning should be taken by all to never let a feeling of fear disturb our equanimity in the presence of cholera.

Symptoms.

Unlike almost every other epidemic disease, the premonitory symptoms of cholera are variable and uncertain. Diarrhœa, sickness of the stomach, a general feeling of lassitude, is a condition of the body which, in time of anticipated attack from cholera, should not be overlooked. In the vast majority of cases that have been reported, in the primary state, the attack was ushered in by a distinct stage, which was characterised by general malaise, rumbling of the bowels, and diarrhœa ; the latter passive, painless but attended with increasing languor and fatigue. This stage, in the greater number of cases, was from one to five days duration. Exceptions were reported, in which the patient, who was apparently in perfect health, after but one dejection passed into the stage of well defined cholera. Especially was this noticeable in the case of children, who retiring to bed at night in usual good health, were awakened at an early hour of the morning by a strong desire to stool. One copious action, and the symptoms of the second stage were immediately

developed. In these cases, no definition of stages could be determined; the patient after a single profuse dejection became exhausted, and collapsed before medical attention could be procured. In the second stage the major number of cases reported, were announced at an early hour in the morning; the largest number occurring about three o'clock; the patient awakening with an active desire to go to stool, this accompanied by more or less nausea. One profuse action is generally followed by vomiting; and together the two symptoms increase in severity. The dejections are almost universally described as "rice-water" in character. At first passed with a sensation of relief, from the over distention of the rectum, they increase rapidly, both as to frequency and to quantity, becoming at last involuntary; exhaustion becoming more and more profound with each action. Fatal cases are recorded in which there had scarcely been any diarrhœa present during the attack; but on handling the body after death, copious discharges of the characteristic "rice-water" fluid was poured out. The matter vomited from the stomach will be that which remains of undigested food, at the moment of attack, but as the disease progresses the subsequent appearances are very similar to those evacuated from the bowels. Thirst in all instances intense, and the calls for cold water incessant, torturing the patient as the disease progresses. A general languor and listlessness will succeed. The pulse will increase in frequency, becoming more and more feeble untill it may cease altogether. The cramps are confined, in the majority of instances, to the extremities, commencing invariably in the fingers and toes. But few instances are reported of the abdominal muscles or muscles of the breast becoming involved. The voice is described as changed, low, husky, lost, or unnatural. The skin loses its natural warmth; nose and ears become cold, there is a sense of stiffness in the joints, the patient feeling a disposition to rest to be undisturbed, at times there may be a slight dizziness and a ringing in the ears. Perspiration breaks out freely, profusely increased upon every effort to vomit; the body be-

comes colder, imparting no sensation of warmth to the touch. As the cramps appear and grow more severe, the patient becomes restless ; the skin around the fingers and hands shrinks and is drawn into ridges; the same may frequently be observed on the feet and toes, giving the patient an appearance of great emaciation. The countenance changes from that of indifference, to that of anxiety indicating pain and suffering. The features are shrunken and contracted ; the eyes deep in their sockets ; nose pinched ; pain in abdomen evident ; breathing labored and difficult, accompanied by sighing and murmuring ; the skin assuming the color of lead. The patient will complain if heat or stimulating applications are applied to the skin, though the body be as cold as marble to the touch. Notwithstanding the acute sensibility of the skin to touch, neither caustics nor boiling water will raise a blister. The tongue is most frequently coated in the center, and clean with a raw, red appearance at the tip and edges ; this condition may vary however in various cases ; it is generally moist, and always cold ; its temperature decreasing as death approaches. The breath conveys a like sensation of coldness indicative of absence of internal warmth, and yet, if at this time the hand be placed over the abdomen, it will almost invariably be found warmer than in health. The patient will pass no urine from the onset to the termination of the attack, and will not infrequently speak of it as something passingly singular ; sometimes with his body cold and shriveled and pulseless, when at the very moment the vital spark is about to wing its flight, the patient will express a desire to walk, to relieve the intense sufferings. One stage follows another so rapidly, in many instances, that it is impossible to determine where one stage ends and another begins. In the fourth or stage of reaction there will be a gradual subsidence in the intensity of the symptoms ; vomiting, purging, and cramps cease, the patient lies upon the bed in a listless, in severe cases, in an almost lifeless condition, the respiration is less hurried, more natural, still labored and perhaps with a slight tendency to nausea. In the more favorable cases the skin

becomes dry; pulse at extremities perceptible; no complaint of discomfort beyond that of thirst; the variations of temperature between axilla, vagina, or rectum less marked; the appearance of the features more natural during sleep; the urine is again voided. In the less favorable cases, reaction is ushered in by a typhoid condition; the lividity of the skin gives place to a "dusky red color," the eyes are injected, the pulse rapid and flickering; temperature of the body raised, the tongue brown and dry. Intense cerebral excitement may be observed in some cases, while in others life may pass away in low muttering delirium. Cases are reported where convalescence was rapid and without drawback, but in by far the large majority the recovery will be slow and tedious, requiring the services of constant watchfulness and care. The more common sequels of cholera are uræmia, hemorrhage from the bowels, and uterine complications.

Remedies tried.

Bleeding, to be productive of good results, must be resorted to before the watery portion of the blood has been drained from the vessels. Its efficacy is doubtful except, possibly, in inflammatory or congestive cases or where the patient is robust, if resorted to in the very early stage may, some think, cut short the disease by allaying the irritability and checking the spasm.

Calomel in reported experiences, is said to transcend all other resources in the treatment of malignant cholera, an opinion sustained by the best physicians in Europe and America. It allays irritability of the stomach and intestines, induces a change of action in the liver. To be effective should be given in full doses, to correct the discharge, changing them from rice-water appearance to a darker color and thicker consistency, an omen of good, mitigating spasms and improving functions.

Opiates.—Opium and its preparations of morphine were almost considered a specific and administered freely. Subsequent experience has led to a change of conclusion, they now

being considered as having a tendency to check the operations of nature in the struggle to regain its healthy condition.

Camphor once had many more warm advocates than now. Still considered useful in combination with calomel in subduing irritation of stomach and bowels, also with carminatives, stimulants and opiates in the premonitory diarrhœa, never to be given during collapse.

Internal stimulants through a mistaken idea of their need to rally the failing powers of life, the languid state of the circulation and diminished heat of the body much harm has resulted from their use. They are contraindicated by a knowledge of the disease, and of its tendency to local developments—inflammation and congestion.

External stimulants in the form of mustard plasters have proven useful where there was any chance of making any impression. Strong mercurial ointments, combined with capsicum and camphor, was much used in hospitals and private practice, resulting beneficially, particularly where the skin was afterward covered with hot, pulverized chalk or potter's clay.

Heat.—Experiments with hot water and vapor baths, I believe have not been productive of good results.

Ice in small pieces has proven decidedly useful in relieving vomiting, checking nausea and allaying thirst.

Emetics are, I believe now considered possibly dangerous in every stage of the disease.

Purgatives.—When the disease has been subdued and the system is returning to a healthy condition, a mild purgative is considered indicated, none perhaps better than castor oil. Calomel is the cathartic exception in cholera, its action being considered specific.

Injections beneficial in certain circumstances. Alcoholic may be administered this way without incurring the risks encountered by taking it into the stomach. Light injections of opium, if there is but little vomiting may better check diarrhœa without depression than by introducing larger quantities into the stomach. Injections of warm water will re-

lieve the uneasy sensation, caused by the acrid bile in the lower bowels, during the stage of recovery. Hot water in the cold stages of the disease to restore warmth, have proven of little avail.

Cupping and leeching, as also *transfusion* may be indispensable, but the necessity for their application are only to be determined by competent medical advice. Of remedies their name is legion, methods of treatment, ditto.

Treatment.

I have just spoken of remedies tried ; many will disagree with my presentation of them, possibly, nevertheless I compared the treatment of hundreds of physicians from every quarter, and during several epidemic periods, and have given the remedies the credits the success or failure their use entitled them to. Instead of following the usual form of presenting a line of formulas for treatment, I will select a number of cases from various parts of the country and give their history and treatment as reported by the physician in attendance.

Reported by S. P. Craig, M. D., Stanford, Ky. This was a fully developed case of cholera. "Lynn Hansford, age 14 years, male, was attacked by diarrhœa, on Monday morning, Sept., 1st. His mother had died of cholera on the previous day ; was a resident of the infected portion of the town. Three (3) grains of calomel with $\frac{3}{4}$ grain of pulverized opium were ordered every two hours. After the third dose his diarrhœa was checked and remained checked until evening. When it re-occurred, attended with vomiting, to relieve which, blisters were applied to the abdomen. About 4 P. M., he had several large rice-water discharges. Commenced giving calomel in two grain doses every hour. At 6 P. M., his pulse became very feeble and his extremities began to get cool. Gave him one sixtieth ($\frac{1}{60}$) of a grain of atropia hypodermically. At 7 P. M. he was still colder ; put him in a hot bath, and applied fresh blisters. At 8 P. M., gave him another dose of atropia (one-sixtieth ($\frac{1}{60}$) of a grain). At 9.30 P. M., he was pulseless at the wrist, and cold to the

knees and elbows, gave atropia, one thirtieth ($\frac{1}{30}$) of a grain, and left with instructions to keep up hot applications until he died. At daylight, on the morning of the second, found him alive; there was a little more warmth, but still no pulse at the wrist. Gave atropia, one fortieth ($\frac{1}{40}$) of a grain. At 9 A. M., repeated the same amount of atropia; pulse perceptible. At 12 M., pulse improving; repeated atropia in same dose. At 3 P. M., reaction was completely established. Secretion of urine was established in seventy-eight hours from inception of disease. Patient made a rapid recovery. After reaction diuretics were freely used.

Case, reported by Dr. Edgar, of St. Louis, Mo. "Mr. P., age 62 years, merchant, remained late at his store, actively employed until 11 P. M., when he complained of feeling too tired to go to his dwelling. Having a bed in one of the upper stories, he retired on that a little before midnight. At 2 A. M., he was called up to the water closet, which was in the building, hence the character of the stool was not known further than that it was "thin as water;" from this time until 6 o'clock he had six more stools, all of same character, during which time nothing had been taken, except a spoonful of brandy occasionally with the water he drank. He now at 6 A. M., vomited a liquid thin as water, after which he was so exhausted as to alarm his clerks, who were with him, and who procured a carriage and removed him to his residence. A few moments after his arrival, about 6.30 A. M., I saw him, and the stool which had just past him, which was copious and rice-water in character; also the vomited matter was similar; skin cold, and covered with perspiration; no discharge of urine since the attack; cramps were slight, voice husky and feeble. The patient was placed on a mattress, head low, extremities at once enveloped in flannels wrung out of hot mustard-water; also the same were placed over the bowels and chest. Pounded ice with a few drops of whiskey, was fed him almost constantly; and twenty (20) drops of the following receipt, commonly known as Hartshorn's mixture, was given every fifteen minutes, viz:

Chloroform,
 Tinc. opium,
 " camphor,
 Aromat. sp'ts of ammonia, *aa* (equal parts) 1½ drachm.
 Creosote, 3 drops.
 Oil of cinnamon, 8 "
 Sp'ts. of vini Gallici (brandy), 2 ounces.
 Dose, twenty (20) drops every ten or fifteen minutes until
 relieved.

The mustard fomentations were kept up faithfully and all the ice allowed that was desired. The vomiting continued more or less for an hour, the intervals of relief being prolonged until it ceased; also but one discharge took place from the bowels after the first portion of the medicine was taken. As a slight acid odor seemed to come from the vomited matter, chalk was added, five grains to each dose, until thirty grains had been taken. As the circulation improved, (the pulse having been 60 and small) and the surface became warm, he was wiped dry and lightly covered with a blanket; no food allowed for twenty-four hours after the vomiting ceased, only ice and brandy in small quantity, and not the slightest muscular effort permitted. Convalescence commenced about twelve hours after the attack and about six after the treatment was commenced. Although I have had patients to die under the above method of treatment, I am confident my success has been better with it than by the mercurial, or any other method, I have tried. I keep the medicine ready prepared as it takes time to put it up.

S. Allen, M. D., Centerville, La., reported the following case. "Some time during the latter part of May, 1873, I was called in haste to visit Mrs. N., aged about fifty years. She was suffering with every symptom of cholera, with a rapid tendency to collapse. I learned that about six hours before my arrival she had been suddenly attacked with "violent and frequent" vomiting attended with terrible "pain and cramp;" that these symptoms were followed in

the course of an hour by copious and frequent discharges from the bowels. About one hour before my arrival the nausea and vomiting had in a great measure ceased, but I soon discovered that they had not departed finally, as I found her not only vomiting, but purging almost continuously and involuntarily pure rice-water. The extremities were cold and damp, the forehead covered with large drops of sweat; abdominal and gastronomic muscles contracted into knots, bladder empty, no urine having been discharged during the past four hours. There was inordinate thirst. The patient recovered readily under the following treatment; the free and general application of dry heat and sinapisms externalty. One (1) grain of calomel was given every twenty minutes until a change in the color of the dejections was noticed. Iced water was given *ad libitum*."

Drs. Felts and Palmer of Osceola, Mississippi Co., Ark., reported a number of cases, among others this one: "After the death of Maples" (one of the cases reported) "on Sept. 14, his brother, at whose house he had died, moved westward with his family. The journey was undertaken in wagons. The cholera broke out in his family while *en route*. The treatment adopted was calomel and camphor, in full doses, and opium was used with extreme care. Alcohol stimulants were avoided, and in their place chloroform and chloral hydrate were exhibited. Hypodermic injections of morphia sulphatis, $\frac{1}{4}$ grain, with two (2) grains of chloral hydrate were used with beneficial results."

From Goodlettsville, Tenn., J. R. Kirkpatrick reported this case: "I was called to see one Forrester, a laborer upon the railroad. He had drank a large quantity of water the day before, and had eaten for supper among other things, a mess of boiled cabbage. He was taken with severe vomiting and purging at 3 A. M. Being absent from home I did not see the case until 1 P. M., when I found Dr. P. Byrne in attendance. The characteristic symptoms of cholera were present in their most aggravated form, attended with rapid prostration and approaching collapse. The treatment had

been calomel in decided doses, and sinapisms" (mustard poultice). "We immediately gave hypodermic injection in each arm, of the following :

Quinine,	. . . . .	8 grains.
Acid. sulph. aromat.,	. . . . .	10 drops.
Spirit of ammonia aromat.,	. . . . .	1 drachm.
Morphia sulphas,	. . . . .	$\frac{1}{4}$ grain.

Ordered that he should have as much ice, and iced water in which a quantity of salt had been dissolved as he wanted ; and of this he drank largely. Chicken soup, seasoned with salt and cayenne, was given, and dry frictions with flannels ordered. The next day there was apparently no change in his condition ; the same treatment was continued, and the following pill every four or five hours :

Calomel,	. . . . .	24 grains.
Pulverized opium,	. . . . .	8 "
" camphor,	. . . . .	10 "
Made into eight pills.		

In two days, by careful nursing, reaction was established, and he slowly but surely advanced to recovery. This was one of those extraordinary recoveries of which we may occasionally boast and it was due, no doubt to the hypodermic injections and the free use of salt and iced water."

F. K. Bailey, M. D., late health officer at Knoxville, Tennessee, reported this case among many others : "Fanny Nelson, (colored), age 21 years, slender, but not sickly ; dejections watery and nearly odorless ; great prostration. Pulse, 90 and small ; tongue slightly coated ; distress at præcordia (fore part of thorax), but no cramping ; extremities warm and somewhat moist ; urine very scanty.

Gave calomel, two (2) grains ; pulv. dovers, five (5) grains ; at once. Sinapism to stomach and ankles. Small pieces of ice to be dissolved in the mouth. 10th morning : Less vom-

iting ; stools of a yellowish tinge ; much prostration ; jacitation." (Tossing about, extreme restlessness) " and insomnia" (sleeplessness).

" Gave bismuth and morphine every two hours, iced tea 9 P. M., has slept some ; one or two stools, but no vomiting. 11th, 8 A. M., slept nearly all night ; amelioration of all the symptoms. Without further details I will say that this girl slowly recovered her usual health."

W. C. Carver, M. D., at Bluffs, Ill., reports: " Aug., 12th, at 7 A. M., Mrs. Sarah Smith, a daughter of Mrs. Hatfield," (Mrs. H. died on the 10th at 9 A. M.,) " was taken with copious, painless diarrhœa. This lady, who was twenty-four years of age, and at the time four months pregnant ; had, some days before her mother was taken with the cholera, arrived from her home at Exeter, which town she had left on account of the cholera. When first seen by the physician, but an hour after the first rice-water discharge, Mrs. Smith was rapidly becoming collapsed. She was actively treated with stimulants, opium and camphor. At 3 P. M., had fully reacted ; pulse, 126 and of considerable volume ; surface of body warm and bathed with moderate perspiration ; secretion of urine re-established. At 8 P. M., the patient to use her own words 'felt very good.' Has had some sleep. Pulse 110. Is not so thirsty ; has taken some beef tea. During the next two days this lady continued to improve. On the 15th her husband and sister were taken with cholera, and died after but a few hours illness. The effect produced upon Mrs. Smith was most depressing, but no re-development of the disease occurred. Aug. 16th, Mrs. Smith learned, unfortunately of the death of a second sister and a brother-in-law, who had left them but the morning before in perfect health, and who resided in Chapin some 8 miles miles east. The shock produced by this intelligence was so profound that the patient could not be roused ; but she lingered in this condition until the 23rd, when she died. Upon removing her body from the bed, it was found that the bed was covered with blood, in which the fœtus, with the placenta etc, was

found. She had aborted without evincing a sign of such complication, and had undoubtedly died of uterine hemorrhage."

The following case was one among the many reported by Dr. Clendennin, late health officer, of Cincinnati, Ohio :

"Abram Rorer, farmer, Ky., was admitted into the hospital on May 25, 1873 ; states that he was taken sick yesterday, with diarrhœa, cramps in legs, and vomiting. Stools very thin and very frequent. Man of good size, well developed, and well nourished. Lies partially comatose ; seems very drowsy when aroused, and has no energy to answer questions ; surface of body cool ; pulse 114, scarcely perceptible at wrist ; has been bleeding some at the nose. Temperature $97\frac{1}{2}$ degrees Fahrenheit. Ordered beef-essence, with ammonia carb. grs. xx, injected into the rectum every two hours. Patient vomits everything except the brandy of which he had taken half an ounce every two hours since he came to the house.

May 25. Had two characteristic rice-water discharges last night. Temperature gradually decreased during the night from $97\frac{1}{2}$ degrees Fahr. at 7 P. M., of the 22nd until 4 A. M. of to-day, until it reached 96 degrees Fahr. By 9 A. M. the heat was normal, and remained so all day. Pulse 126, barely perceptible. Ordered brandy, eight (8) ounces ; tinc. catechu, two (2) ounces ; of which half ($\frac{1}{2}$) an ounce was to be given every two hours,

May 24. Stopped the above, and ordered the following : Piperin, tannin, gentian, of each one (1) grain. To be given every hour.

Pulse 105, still weak, but stronger than yesterday ; has vomited again to-day. Stools dark colored and deposit thick ; not so frequent ; hands still cold ; lies perfectly listless. The temperature remained normal up to the middle of the afternoon, when it again began to drop. The following was then given :

Hydrg. sub. mur., 10 grains.

Piperin, 20 grains.
 Tannin, 20 "

Made into ten (10) powders, one of which was given every hour.

This was given until used up; the same was repeated without the hydrg. sub. mur. (calomel).

May 25. In *statu quo*, stools somewhat green, patient very much reduced.

May 26. Patient very much worse; pulseless; limbs cold; cheeks sunken; not much diarrhœa; continued treatment.

May 27. Died in convulsions; cholera."

"Copied from the male medical record of the Cincinnati Hospital, vol. 19, page 208, September 7, 1874." (Signed) W. R. Amick, resident Physician."

"This case was under care of Dr. John Davis, with James L. Neave, resident Physician. W. R. Amick."

Out of the nearly ten thousand reported cases from which I have selected the above, I might have selected a sufficient number of cases to have completely filled this volume.

Possibly it may be well to append a brief choleraic formula.

If there is slight diarrhœa caused by indigestible food, without vomiting, a dose of castor oil may prove sufficient; otherwise take of:

Powdered rhubarb,
 Carbonate of magnesia, each, . . . 20 grains.
 Comp. tinc. rhubarb, 1 drachm.
 Peppermint water, 1 ounce.

Take at a dose. If looseness continues, repeat, adding from five (5) to twenty (20) drops of laudanum.

If the diarrhœa becomes obstinate, the following, which is excellent in diarrhœa in every stage:

Take of catechu and kino, each,	. . . . .	1 drachm.
Tannic acid,	. . . . .	30 grains.
Powdered opium,	. . . . .	5 "

Rub together very carefully and make into ten (10) powders. Take from a half to one powder after each operation, or, one every two hours.

Having completely checked the looseness of the bowels, after a few hours on going to bed, take blue pill five, (5) grains; opium, one-half ($\frac{1}{2}$) grain; as a pill.

If the rice-water discharges are present, give calomel and nitrate of potash, each ten (10) grains at a dose and repeat every half-hour, till the evacuations are of a decidedly bilious character. Were I the physician, I would prefer giving, at least to commence with, that amount in five (5) doses. Nevertheless many cases are reported where larger doses were apparently the one thing essential. Where vomiting is excessive, chloroform has proven of great value, in allaying irritability of the stomach and relieving spasms.

Administer as follows :

Chloroform,	. . . . .	1 drachm.
Oil of turpentine,	. . . . .	1 ounce.
Water,	. . . . .	3 drachms.

Give a teaspoonful of this mixture in a little weak brandy and water; spearmint water may be drank to relieve thirst. In half an hour the dose may be repeated, followed shortly after by the powder of calomel and nitrate of potash. It is claimed that the chloroform mixture will arrest the excessive drainage, enable the stomach to retain the remedy until its desired alterative effects are produced on the organs, and the secretions again flow in their natural channels, a change is seen in the entire system; pulse beats, warmth return to the extremities, the features expand, the hue of death passes into the flush of life. If the vomiting is in the early stage and evidently that it arises from the use of improper food.

Pulverized ipecac, 20 grains.
 Calomel, 5 grains.
 Let this be taken in half a wine glass of water.

If the rice-water discharges are subdued and now only moderate, use this mixture :

Carbonate of soda, 1 drachm.
 Oil of sassafras, 5 drops.
 Laudanum, 60 "
 Water, 6 drachms.

Take a teaspoonful to a tablespoonful every half hour or hour, till distress, sickness of the stomach and inclination to vomit are entirely subdued. For cold perspiration, take lard one pound ; red pepper two ounces, simmer well together, and apply while quite hot, with a piece of flannel, to the entire surface, rubbing briskly until warmth is restored to the body. Dr. Roes's ointment is :

Strong mercurial ointment, 6 ounces.
 Cayenne pepper and camphor, each, 3 "

Thoroughly blend together the ingredients, and rub the entire surface of the body with a brush. Dr. Warner rejected calomel in his Baltimore hospital practice in 1832, commenced with : tinc. asafœtida, 3 drachms, follow this every hour with a drachm dose. During interval between first and second dose of asafœtida, use as follows :

Pulverized rhubarb, 10 grains.
 Nitrate of potash, 5 "
 Pulverized squill, $\frac{1}{2}$ "
 Sulphate of quinine, 3 "

Take at dose in a little weak brandy and water, apply mustard to abdomen, and make free use of the hot lard ointment.

Hygienic suggestions as a means of prevention give immediate attention to any disturbance of the bowels; they are the premonitory symptoms of the disease; check it while you can. Avoid exposure to night air and the morning dews. Bathe frequently. Change underclothing often. Flannel next the skin, is best to protect from sudden atmospheric changes. Drink cold water cautiously, take ice cream sparingly, avoid over exertion. Do not give way to alarm in the presence of the malady. Do not fear contact with the sick. Be temperate and regular in your eating and drinking, avoiding all excesses of whatsoever kind. Have your homes and all they contain of carpets, beds, bedding, etc. etc., thoroughly cleaned, and always well aired, the premises thoroughly disinfected. See that your wells and cisterns contain only pure water. The history of epidemics appear to strongly point to pure cistern water as decidedly the least likely to contain choleraic poisons, so marked are the evidences on this point that it is urgently advised that none but pure cistern water be used for drinking and cooking purposes. Those persons, or those communities who most strictly observe the plain laws of hygiene, indulging in rational amusements are the least apt to suffer an attack of the dread malady.

Homœopathic treatment.

When the patient has been taking allopathic medicine, camphor should been given three times, as stated below. Take pure loaf sugar—two or three lumps—place three drops of the tincture upon it, repeating such dose at first every five minutes, extending the interval at first every ten minutes, according to the duration of the spasmodic attacks, only repeating the dose as the attack returns, and continuing this course until positive change. Decided improvement is readily distinguishable; first by increased warmth, and, shortly by diminution of anxiety, by comparatively healthy perspiration, and by an inclination to sleep. After sleeping an hour or two, the patient awakes with a sensation of ease which he can scarcely believe.

Veratrum — *Arsenicum* — *Cuprum* — *Carbo veg.*—These four remedies are the most essential, when Asiatic cholera, in its characteristic malignity, has fairly set in and exhibits its worst aspect. One or more of these remedies operate with astonishing affect in arresting the progress of disease. The selection should depend upon the particular symptoms exhibited, and by comparing such symptoms with the indications subjoined in respect of each medicine now named. *Veratrum* as preferable whilst there is yet considerable reactive power, whereas *arsenicum* is more appropriate when the vital energies seem feeble, and as if disposed to sink rapidly. In like manner *veratrum* is more appropriate to persons of habitually robust and vigorous health, and who are not exposed to the depressing effects of insufficient or unwholesome food ; or of squalid, uncleanly, ill-drained or ill-ventilated dwellings ; or to continual residence in unhealthy districts, and to the mischievous effects of deleterious exhalations. *Arsenicum* is usually more efficacious for those whose constitutions are either hereditarily defective or impaired by irregular habits, excesses, and intemperance, or habitually exposed to any of the injurious circumstances just enumerated. The alternation of these two medicines is of considerable advantage in some very desperate cases. *Veratrum*,—when cholera sets in most severely, with sudden and violent fits of vomiting and purging ; rice-water evacuations ; severe cramps, ice-like coldness of the entire body, even of the tongue ; feeble pulse, cold clammy sweat ; excessive thirst ; weak, hollow voice ; groaning and yawning. A dose if singly, every quarter of an hour in extreme cases, or even half hour in less urgent ; and in desperate cases when a fatal issue seems imminent every five minutes, until the extreme severity of the symptoms seem somewhat abated. If in alternation with *arsenicum*, give the like dose of each in rotation. The particular symptoms which characterize and identify *arsenicum* are scanty discharges by purging or vomiting, with severe urging or retching ; external coldness or chilliness, accompanied with a burning sensation in the

stomach and bowels ; rapid loss of strength and extreme prostration. Dose, if singly, every quarter of an hour in urgent cases, and even every five minutes if danger seems imminent, or only every half hour if the case is of a less desperate character, until the symptoms are modified, and the sufferings not so incessant. If in alternation as directed for veratrum ; but if the patient be gradually sinking and the pulse becoming less and less perceptible, or, otherwise, if no good effect should appear to result from the third dose of arsenicum, consider the other medicine herein named and especially carbo veg. as regards the pulse. Cuprum A. should be administered within a quarter of an hour after the last dose of veratrum, if cramps continue to increase. Dose, every quarter of an hour till amelioration or change.

Carbo veg. may be advantageously employed in alternation with arsenicum, when the patient is reduced to the last extremity animation, being all but completely suspended, and the pulse scarcely perceptible ; or when on the cessation of vomiting, purging cramps or convulsions, determination of blood to the head and chest ensues, attended with oppressed breathing, coldness of the breath, redness or livid hue of the face (which is considered with clammy sweat) and lethargy,—the patient seeming as though seized with an apoplectic fit.

A dose in water, or if any difficulty arise, dry on the tongue, at intervals of five, ten and fifteen minutes successively, and then, if the pulse becomes stronger, every half hour until positive change.

Rhus tox. and bryonia.—These two medicines given alternately, proven of great service if typhoid symptoms and delirium ensue. Dose, dissolve the medicines separately, then administer alternately, at intervals of two hours, until a degree of improvement becomes apparent, and then at intervals of three hours, until permanent amelioration or change.

Hyoscyamus.—When the patient lies in a torpid state, or speaks confusedly, and exhibits a red and bloated face. A dose in water, or dry on the tongue, every hour until the

symptoms diminish in intensity, and then every three hours, until permanent amelioration or change. In cases of sudden prostration, without diarrhœa or vomiting, with sudden and extreme prostration, coldness, and livid color of the skin, cold clammy perspiration, and feeble or scarcely perceptible pulse—camphor should be given in the first place. If, after an hour, no benefit follow, veratrum may be administered, succeeded by carbo v., in alternation. If vomiting and purging ensue, veratrum, arsenicum or cuprum must be selected in accordance with the symptoms. Aconite has been tried in these cases of sudden prostration with great success. A dose of any of the above remedies every five, ten or fifteen minutes.

Accessory treatment.

The patient should be kept in a warm room, the bed heated by artificial means, bottles of hot water applied to the feet, the sides of the abdomen and the arm-pits, and hot flannels to other parts of the body. Observance of this rule greatly aids the action of the medicine employed. Frictions with woolen cloths, and rubbing, under the bed clothes, the parts affected with spasms, are to be recommended; but if these measures prove distressing to the patient, he should be left quietly to the action of the medicine. Anything which might disturb him, such as noise or contradiction, should be carefully avoided, and his spirits sustained as much as possible. Cold water is the best drink, but the patient should not be allowed to take much at a time. In the management of cholera, two objects have to be kept distinctly in view; the restoration of the patient, and, as far as possible, the prevention of its spreading. Let the patient be kept strictly in bed, in a large, light, and well ventilated room, as soon as possible remove all curtains, carpets and unnecessary furniture, let plenty of air be admitted into the room; all evacuations passed into bed pans, containing Condry's fluid; let the floor be kept scrupulously clean, and often wiped over with a solution of the disinfectant used. All soiled linen and

sheets should be at once removed, and put into chloralum solution. The evacuations should be passed into glazed vessels containing Condyl's fluid, and, where practicable, buried at a considerable depth. Waterproof sheeting is the best thing to place under the patient. When persons are recovering, frequent examination must be made to guard against bed-sores; and the greatest care exercised in the administration of liquids, or a relapse will take place, just as in typhus.

M. Desprez gives in the *Bullitin de Therapeutique*, a treatment recommended by him in 1857, and which was found very useful in the terrible epidemic at Damascus, in 1875, and in India, in 1876 and 1877. The following potion constituting the basis of the treatment:

Chloroform,	. . . . .	15 minims.
Alcohol,	. . . . .	2 fluid ounces.
Acetate of ammonia,	. . . . .	2½ drachms.
Syr. chlorhydrate of morphia,	. . . . .	1 to 1½ ounces.
Water,	. . . . .	3½ ounces.
A teaspoonful every half-hour.		

Chloroform thus administered seems to act on the spasms and contractions of the stomach.

Liquids introduced in very small quantities are no longer vomited, the medicament favors absorption, and as it is very rapidly eliminated, accumulation of action are not to be feared. Without insisting on the theoretic part of the treatment of M. Desprez' memoirs, it must be said that M. Follet, who followed out the treatment at Pondicherry, had a mortality of 29 per cent., while under other methods of treatment the mortality reached as high as 80 per cent. This method of treatment is applicable only during the first period of cholera. As soon as the period of reaction sets in, the employment of stimulants and narcotics is of more doubtful benefit, and treatment should be modified according to the symptoms and indications.

DISEASES OF THE LIVER.

JAUNDICE (*Icterus*).

Possibly one of the most frequent, and certainly one of the most significant manifestations of a disordered liver. It gives a morbid yellowness to the skin, to the eyes, and may often be found interally. One writer says: "It has no uniform pathology, causation or concurrent symptoms; but is itself so marked an occurrence as to deserve special study." Another says: "Jaundice, there can be no doubt, is due to the presence of biliary constituents in the blood; but it is as yet not satisfactorily solved how they get there." And yet another that: "All cases of jaundice may be referred to in one of two classes: Cases in which there is a mechanical impediment to the flow of bile into the duodenum, and where the bile is in consequence retained in the biliary passages, and thence absorbed into the blood. 2. Cases in which there is no impediment to the flow of bile from the liver into the bowel." Since among learned doctors there is not agreement, I shall not undertake to determine the question for them.

Symptoms.

Symptoms are such that all agree that its diagnosis is easy; the only two morbid states with which it is liable to be confounded are the slight yellowish hue of chlorosis, and the yellowish appearance of the white of the eye which is natural to some persons. In the ordinary cases, either suddenly or after some days indisposition, the whites of the eyes becomes tinged with yellow; next the roots of the nails, the face, the neck, trunk and limbs. The urine shows its color before the skin or whites of the eyes; staining the linen yellow. The actions of the bowels are of the color of lead

or white or rather light slate color. The mouth has a bitter taste and the patient is usually low spirited and depressed. It is not usually considered fatal. Out of nearly 11,000 cases reported during the rebellion, only forty deaths, or one death to about every two-hundred and seventy-five persons attacked.

The jaundice of young infants is of short duration and very seldom fatal.

Treatment.

There is no settled or special treatment for jaundice ; in all cases the treatment must have reference to what is believed to be the cause. When supposed to be temporary or functional, the great object being to restore the action of the liver. Calomel five (5) to ten (10) grains, or blue mass pills two (2) to three (3) at bedtime, occasionally, seems to have been very efficient during the first week or two of treatment, or even in smaller doses. Saline purgation, such as Rochelle salts or cream of tartar are preferred by some. Small doses of podophyllin ; of the extract, one (1) to five (5) grains ; of the resin, one-sixteenth ($\frac{1}{16}$) to one-fourth ($\frac{1}{4}$) of a grain if the disease is persistent. Should the bowels not stand purging, as some will not, small doses of taraxacum (dandelion root), or bi-carbonate of soda taken before meals, acts mildly on the liver. In cases of long duration and slow recovery, nitro-muriatic acid, thirty (30) to forty (40) drops, twice to thrice daily, will often hasten recovery very much.

Homœopathic treatment.

The patient should be kept warm in bed in a warm room, and take for the first four or five days, mercury ; a dose three times a day. If not better after this time, give hepar sulphur, or hepar sulphur and chelidonium. In obstinate cases give lachesis, nitric acid, or sulphur.

For jaundice caused by a fit of passion or disappointment, give chamomilla, china, nux vomica, pulsatilla.

When it is caused by the abuse of mercury calomel, give

china, hepar sulphur, lachesis, nitric acid, sulphur. When persons are liable to jaundice from very slight cause give lachesis, and sulphur; a dose every week alternately.

Administration of remedies.

Give a dose (four globules) of the selected remedies three times a day. When two remedies are given, give every four hours alternately, on alternate days. Warm baths will be found beneficial. Constipation may be relieved by injections of either cold or warm water.

INFLAMMATION OF THE LIVER (*Acute hepatitis*).

This trouble is common in hot climates and many of these are found in connection with dysentery. In its most common form is known to some medical writers as "gastro-hepatic catarrh;" it is treated of by others as "gastritis." There is reason to believe the duodenum, that portion of the small intestine next the stomach, gall-duct and liver to be all, in variable degree, involved in such attacks. There are many troubles, also, of the liver itself, with which acute hepatitis may be confounded. One of the most eminent of diagnosticians (one who is able to determine a disease by its symptoms), of our day has given the following list of maladies resembling acute hepatitis and with which it may be confounded.

Perihepatitis (Inflammation of the serous covering of the liver); *Inflammation of the portal vein*; *Pigment liver*; *Chronic hepatic diseases with acute symptoms*. *Acute non-hepatic diseases with jaundice*; *Diaphragmatic pleurisy*; *Inflammation of the biliary passages*; *Acute yellow atrophy*.

Men are far more subject to the trouble than are women, owing, largely, to irregularity in habits of living, exposure, etc., and in children it is exceedingly rare.

Symptoms.

Symptoms are partially those attendant upon acute congestion of the liver. In this, however, we have greater

thirst ; gastric irritability more marked, a more embarrassed respiration. We will have heat of surface, dry cough, in some cases an accelerated pulse. The pain is dull and associated with a feeling of tension, greater in degree than in acute congestion ; with tenderness on pressure ; frequently there is vomiting and sometimes diarrhœa. It may end in dispersion of the disease ; but unfortunately the malady often terminates in suppuration, pus collecting in the substance of the liver. (See Abscess of the liver).

The activity of the treatment will measurably be dependent upon, and regulated by, the acuteness of the attack. Mercurial treatment, once so laded, in these cases is not now considered indicated. Saline cathartics, having taken their place, some prefer castor oil as a cathartic, others using senna in combination with salts, quiet, rest in bed, low diet and cooling drinks. The free use of lemon juice, in the form of lemonade, is said to do its full medicinal work without harm, and taken when the stomach is clear of food, has abundant opportunity to work on the system thoroughly. Fomentations of hot hops and tansy may be applied over the region of the liver. Nitrate of potash in ten (10) grain doses, thrice daily should be given to act upon the kidneys. Dover's powders at bed time in ten (10) grain doses, will often afford a quiet night's rest. At the beginning of the abatement of the fever, quinine in one (1) to two (2) grain pills should be given three to four times daily. The patient should be given a thorough sponge bath at least once daily in tepid water to which has been added some soda or salaratus. Blisters, over which should be placed hot cloths to hasten their drawing, to increase their effects over the seat of disease are considered very beneficial. The application of the tinc. of iodine is preferred in some cases, not infrequently, in these local applications. When after earnest efforts a blistered surface is induced, we find ourselves with a small sized elephant on our hands without we have had some experience in that line. Should any of my readers be caught in such a dilemma, try Dr. Thompson's plan for dressing a blister ; it is as follows :

“In blistering the surface over an internal inflammation after much difficulty, they may expect trouble with the blister itself; for the mischief seems to be transferred from within to the blistered surface, and often causes a degree of irritation which will fully test the patience and power of endurance of the patient, and exhaust the skill of the physician or nurse. Full doses of opiates must be given, and the blister dressed thus: add four (4) grains of morphine, or half an ounce of laudanum, to six (6) ounces of mucilage, and a fine soft cloth—that which has been worn is always best—saturated in this mixture and neatly applied to all the vesicated surface. This is to remain; now keep this wet by placing several folds of old cotton or linen cloth, which has been saturated with emulsion, over it, and renew it often enough to prevent the first from becoming dry. If the heat and irritation be great after applying the first cloth as directed, you may pour a stream of tepid water on it, and continue the pouring until the patient ceases to complain; then proceed with saturated cloths as before directed.” I wish these directions remembered, as they apply to all irritable blisters, and will not be again repeated.

CHRONIC INFLAMMATION OF THE LIVER.

Is frequently met with in temperate climates, and is much more common in inter-tropical countries than the acute form of disease. It is sometimes a sequence of the latter; but in most cases it comes on gradually, and is at first scarcely noticed by the patient. Pain in the region of the liver is the principal symptom in the chronic as well as in acute form of the disease; in the former it is dull, heavy, and increased by pressing with the hand over the part, by going quickly up stairs, riding on horseback, and, in fine, by any kind of active exercise; it is also aggravated by lying on the left side, or by any excess in eating or drinking, and, in some cases, may not be felt during many months, unless under the above or similar circumstances. Cough is only an occasional symptom when the inflammation is acute, whereas the chronic

form of the disease is almost invariably accompanied with a short dry cough ; and quick walking, or any unusual exercise, brings on hurried and difficult breathings, and, perhaps, a fluttering sensation at the heart. The skin and eyes acquire a slightly yellow tinge, the evacuations from the bowels have occasionally a white or clay-colored appearance, indicating a deficiency of the biliary secretion ; while, at the same time, the urine is scanty, high colored and deposits a copious sediment ; and, when the disease is of long standing, the liver is generally observed to be materially larger. The symptoms, however, are sometimes so obscure, that the only indication of the disease observed by the patient is a dull pain or an uneasy sensation under the ribs at the right side. In many cases, the first symptoms noticed are a yellowish color of the skin and of the whites of the eyes ; the unnatural appearance of the evacuations from the bowels above mentioned, and the saffron-colored urine depositing a brick-dust-like sediment. If the right side be examined, the liver will probably be found slightly enlarged, and tender when pressed upon ; but when not touched, the patient only experiences an uneasy sensation of weight at the part, and is unable to sleep when lying on the left side.

Treatment.

Rigid attention must be paid to the diet during the cure of this disease ; that is, nothing gross must be taken, nor any thing which the patient cannot readily digest.

Counter-irritation is the repeated application of blisters, or by rubbing in the tartar emetic ointment ; in long protracted cases, the insertion of a seton, or the application of an issue, has been found advantageous. The bowels are to be carefully regulated by mild laxatives, such as one or two grains of calomel at bed-time, followed in the morning by a small quantity of the infusion of senna leaves with Rochelle salts, or gentle doses of lenitive electuary. If the patient be not relieved by these means, it will be advisable to have recourse to minute and frequently repeated doses of mercury.

Half a grain of blue pill, combined with a grain of the extract of henbane, should be given three times a day, during a longer or shorter period, as the case may require. In the chronic form of the disease, we cannot expect to do much in a short time, and must therefore steadily persevere with the above measures, until the patient is restored to health. Or the treatment may consist in keeping the bowels gently open and the use of iodide of potassium—three (3) grains three times a day.

In chronic inflammation of the liver the bowels are usually very torpid; this partly owing to the bile, which is the natural purgative, not being secreted, or not being of the right kind; the principal objects therefore, which we must have in view in the management of this disease are to regulate the action of the bowels, and to restore or correct the secretion of the bile, this pill may be used.

Calomel,	.	.	.	.	.	.	30 grains.
Comp ext. of colocynth,	.	.	.	.	.	.	30 "
Castile soap,	.	.	.	.	.	.	30 "
Make 18 pills.							

A foot-bath composed of three gallons of water, at the temperature of 96°, mixed with two ounces of nitric acid and one ounce of muriatic acid, used every night for half an hour at bed time is strongly recommended by several distinguished medical men; and sponging the body with a wash of the same nature has also been found serviceable. The symptoms are, however, often so mild and insignificant as to pass almost unnoticed, as large abscesses have been found in the liver upon dissection which in the person's life time had created little or no inconvenience, and which may have been occasioned by some previous inflammation. Hepatitis, like other inflammations, may end in resolution, suppuration, gangrene or scirrhus, but its termination in gangrene is a rare occurrence. In chronic inflammation of the liver, give the compound pills of podophyllin, or the following:

Leptandrin,	. . . . .	1 drachm.
Podophyllin,	. . . . .	1 scruple.
Apsicynin,	. . . . .	1 "
Ext. nux vomica,	. . . . .	6 grains.
Castile soap,	. . . . .	1 drachm.

Make into thirty pills. Dose, one pill every night. If mercury is used, the following may be given :

Mercurial pill,	. . . . .	2½ grains.
Ipecac, powdered,	. . . . .	½ "

Confection of opium sufficient to make one pill. Take at one dose, and repeat every night, or every other night.

A daily bath of weak lye water should be used, followed by a vigorous rubbing. Out door exercise should be taken.

Nitro muriatic acid diluted with water until it is about the strength of sharp vinegar may be rubbed over the stomach, and will be found to be very beneficial. Perspiration should be induced by the tincture of veratrum viride, in doses of from three (3) to ten (10) drops every hour. When the patient is recovering, tonics should be used, as the following :

Chamomile flowers,	. . . . .	½ ounce.
Cold water,	. . . . .	1 pint.

Let the mixture stand for an hour or two and strain.

Dose, a wine glassfull several times a day. Or this :

Nitric acid, diluted,	. . . . .	2 drachms.
Muriatic acid, diluted,	. . . . .	2 "
Syrup of orange peel,	. . . . .	2 "
Tincture of orange peel,	. . . . .	2 "

Water sufficient to make one pint.

Mix. Dose, a teaspoonful three times a day.

Homœopathic treatment.

Aconite.—For the acute form ; stitches in the region of

the liver ; great pain ; high fever ; tossing about ; anguish ; dread of death.

Belladonna.—Pressing pain in the chest and shoulders fullness in the stomach ; dragging in the region of the stomach ; dizziness with fainting ; difficulty of breathing ; great thirst. May be given after aconite, and in alternation with mercury or lachesis.

Bryonia.—Aching pains with fullness in the right side ; tongue coated yellow ; violent oppression of the chest ; rapid and anxious breathing ; constipation. This is suitable after aconite, or in alternation with mercury.

Mercury.—The patient cannot lie on the right side ; bitter taste in mouth ; loss of appetite ; thirst ; shivering.

Chamomilla.—When the disease is caused by taking cold, or by violent anger ; dull pressing pains in the region of the liver which are aggravated either by pressure, movement or breathing ; oppression of the chest ; yellowness of the skin ; bitter taste in the mouth.

China.—When the disease is caused by malaria.

If the pain becomes pulsating or throbbing, if there be feverishness and shivering, or rigor, administer belladonna and hepar sulphur every three hours ; and follow by silicia, china or arsenic.

Accessory treatment.

The tepid hydropathic body pack to be worn night and day after the acute symptoms have subsided. The tepid wet-sheet pack, followed by an abdominal compress. If the pain be very severe, hot fomentations.

Diet.

Similar to that in fevers. No meats or soups, but gruels, toast panada, and light farinaceous articles ; toast-water, cold water, lemonade, baked apples, prunes, sweet oranges, peaches, raspberries, strawberries, and grapes may be allowed.

ABSCESS OF THE LIVER.

When the inflammation terminates in the formation of an abscess, which is not an uncommon occurrence in warm climates, the pain becomes more acute, and is accompanied with a sensation of throbbing; there is a troublesome dry cough, and in many cases hurried breathing, the pulse, though still full, becomes softer. the palms of the hands are distressingly hot, the sleep is disturbed, fits of shivering, alternating with profuse perspiration, are experienced; and all these symptoms are aggravated towards night. In some cases, as soon as the matter begins to form, all the feverish symptoms abate, and the pain gradually diminishes, but the swelling continues, and chills or shivering alternating with perspiration never fail to be experienced. This termination is generally fatal, either in consequence of the matter remaining confined in the liver, or by the abscess bursting into the cavity of the belly. But it sometimes happens the abscess points externally, and the aid of the surgeon is required to give vent to the matter; it bursts spontaneously, and the patient recovers. Sometimes again, the matter escapes from the body through other channels, and the patient is thus rescued from death.

Treatment.

When the inflammation has terminated in suppuration (an event which is announced by the occurrence of rigors, a sense of sinking and anxiety in the precordia, night-sweats, and occasionally formication of skin, with a fullness and feeling of weight about the margin of the ribs, and a dull throbbing pain in the liver), the further employment of mercury, with a view to its general influence, is improper. "If the local symptom and the state of the pulse and of the system seem to require it, the application of a few leeches in the vicinity of the tumefaction will be generally serviceable; and afterwards poultices should be assiduously employed with a view of promoting the external pointing of the abscess." The bowels also should be regularly though gently

evacuated, after the formation of abscess has taken place, which may be best done by five (5) or six (6) grains of calomel, followed in a few hours by small portion of one of the neutral purgative salts. When the abscess does not point externally, nothing more can be done than "to palliate symptoms as they rise, and wait for the event." In instances where the abscess does point outwardly, and the fluctuation of the matter can be distinctly felt, an opening should be made into it, and exit given to its contents. "But this operation ought not, however, to be undertaken precipitately, and before the purulent formation has made its way sufficiently near to the external surface of the organ, or before the part of which it points has formed adhesions to the opposite part of the abdominal parieties. The practitioner should also be fully convinced, from the state of the tumor in the hepatic region, and from the history of the case, that abscess actually exists, and that the tumor does not proceed from an excessive accumulation of bile in the gall-bladder. When the pain and general fullness are diminished, and replaced by a distinct tumor, without acute pain, soft and fluctuating at its apex, or with a soft elasticity and slight lividity or redness of the surface, and a somewhat hardened and elevated base, the operation may be undertaken with every expectation of success.

The operation of paracentesis thoracis has been successfully performed in cases where the abscess had burst into the cavity of the thorax. An interesting case of this kind is related by Mr. Huggins, in the *London Med. Repos.* for July, 1827.

After suppuration has taken place, and the matter found a favorable exit, there is, perhaps, no remedy which will afford so much advantage as the nitro-muriatic acid. It may be employed both internally and externally as a foot-bath, in the manner recommended by Dr. Scott. Equal parts of the nitric and muriatic acids are the proportion in which they are usually employed. From a half to a whole drachm of this mixture, diluted in a sufficient quantity of water, may be taken

daily ; and in order to prevent the acid from coming in contact with and injuring the teeth, it should be sucked through a small glass tube, or a quill ; or the feet and legs may be immersed from thirty to forty minutes every evening in a warm bath, of the strength, at first, of half an ounce of the acid mixture to a gallon of water, and afterwards gradually increased in the strength to the amount of six (6) or eight (8) drachms to the gallon. In two instances of hepatic suppuration from acute inflammation, the patients recovered completely under the protracted use of this bath. Considerable advantage may also be obtained, in suppuration of the liver, from small doses of the muriate of mercury in union with the extract of cicuta, in the proportion of one-tenth of a grain of the former, to two (2) grains of the latter, three times daily. Mr. Annesley has derived advantage from the nitric acid in combination with laudanum, hyoscyamus, or conium, particularly when the abscess has opened into the lungs. When in cases of this kind, the system becomes much exhausted, and the night-sweats are copious, or where the digestive power fail, recourse ought to be had to some of the tonic bitters, in conjunction with nitric acid and the extract of conium.

HOB-NAIL LIVER, OR GIN DRINKER'S LIVER, OR GRANULAR LIVER (*Cirrhosis*).

A Chronic disease of the liver in which the organ becomes hardened and usually more or less reduced in bulk, especially the left lobe, although in the primary stage of the disease the bulk is increased. The capsule of the liver is always thickened. The approach of the disease is usually very insidious ; often one of the first evidences is a dull pain in the neighbourhood of the liver. Nausea, indigestion, furred tongue, and slight yellowness of the skin and eyes, are among the earliest manifestations. Following upon these, as the disease progresses, the patient grows thinner, becomes emaciated, the strength fails. With the larger number there will be constipation, perhaps hemorrhoids, vomiting, etc.

With others there will be diarrhœa. Later, dropsy makes its appearance, the abdomen becomes distended, the limbs enlarged from the pressure of the fluid in them. The urine becomes high colored; these and other disturbances are present.

Treatment.

This it is not worth while to consider, as only palliative measures can be taken.

TUMORS, OR CYSTS OF THE LIVER (*Hydatids*).

"The human form divine" is the abode of many kinds of noxious parasites, which derive support from the food taken for its sustenance, or from the tissues of the body itself. Among others a parasite known as *echinococci*, which are enclosed in a sack or cyst. *Hydatids*, by which this disease or condition of the liver is known, are elastic tumors consisting of cysts developed round the echinococci, which are the larvæ of the tapeworm. They are found more frequently in the liver than in any other organ, but are found also in the brain, muscles, bones, ovaries, uterus, kidneys, lungs, heart, spleen, etc. There usually is but one sac, or cyst, but there may be a number. In their development they do not as a rule occasion any very serious disturbance of the general health. These cysts may exist in either lobe but are most frequently found in the right. As to location, they may be buried within the viscus (organ), or may be upon its upper or upon its lower surface, or attached to or projecting from its border. The most prominent manifestation of their presence is the decided increase in the size of the organ. Its growth is very slow, in many cases continuing for years, attaining to very considerable dimensions. The cysts may be single, or multiple, varying in size from a pea to that of a child's head. In some instances the echinococci die and the sacs rupture or become otherwise reduced and obliterated. In some instances the cysts may rupture and the contents be discharged through the walls of the ab-

domen into the stomach, intestines, or through the bronchial tubes finding exit through the mouth. Slow recoveries then usually take place. The great danger lies in the liability of the cyst rupturing into the pleura or peritoneal cavity ; producing pleurisy or peritonitis. A few cases are mentioned where inflammation occurred, suppuration induced, and by this means recovery taking place.

Treatment.

So long as the tumor is causing no inconvenience, there is no pressing demand for surgical interference. Some physicians have pinned their faith to the supposed power of iodide of potassium and the chlorate of potassium, taken internally to cause the absorption of the fluid of the cysts, and thus destroy the parasite. The only reliable treatment thus far seems to lie in the direction of surgery. When it becomes necessary to tap the cyst, the case had best be relegated to the surgeon.

GALL-STONES (*Biliary calculi*).

This name is given to concretions which form in the gall bladder, and the hepatic and biliary ducts. It is no uncommon thing for the bile to produce, spontaneously, owing to its partial decomposition, either in the larger ducts of the liver itself, or more frequently in the gall bladder. These gall-stones, as they are called, so long as they remain stationary, usually give little trouble. They differ in number, size, and position. There may be only one or there may be thousands. They may be of the minutest size, or large enough to fill the whole cavity. Gall stones usually of a yellowish, brownish or brownish-yellow color, or of a rather soft consistence, and of various shapes but generally with several irregular faces, and rounded angles, produced by their mutual pressure. These concretions often remain in the gall bladder long without occasioning inconvenience, and are first discovered upon examination after death.

They may even lie in the ducts without occasioning any considerable uneasiness.

It is when in the course of expulsion, or when so large as to occasion distention or obstruction, that they become sources of trouble.

When they are being expelled they occasion pain, often exceedingly violent, and coming on suddenly, at the pit of the stomach, towards the right side, and extending to the back succeeded by a pause, with dull constant pain, yielding again at uncertain intervals to another paroxysm. There is pale skin, small and feeble pulse, nausea, vomiting, anxiety, restlessness, hurried breathing, faintness and great prostration. An attack if not relieved may last from a few hours, to two or three days.

Relief is experienced the instant the calculus passes into the bowels. It may be discovered on inspection of the evacuations. Dr. Wickham Legg says: the treatment of gall-stones may be discussed under two heads; during the paroxysm of the colic, and between the attacks.

During the paroxysm, the great object of the physician is to relieve pain. This may best be done by full doses of morphia, and if this be rejected by vomiting, it may be administered hypodermically. The patient may be put in a warm bath and kept there, the heat being maintained by the renewal of the warm water; should these means fail, chloroform or ether may be inhaled.

Between the attacks of biliary colic a great number of remedies have been proposed; the most popular is Durande's, which consists of three parts of ether and two parts turpentine; the best plan is to give ten (10) to twenty (20) minims of this mixture three times a day, enclosed in capsules or pearls. The German physicians have great confidence in the alkaline mineral waters, especially Carlsbad. Some think this due to the large amount of water daily ingested, causing a large flow of bile. Others recommend purgatives, as castor oil or taraxacum; nitro-hydrochloric acid. Emetics have been employed, but they are dangerous

on account of the straining which they cause, and which may lead to the rupture of a vessel.

Homœopathic treatment.

Aconite, chamomilla, podophyllin. Tongue coated white ; headache ; no appetite ; pulse quick and hard, but small ; urine very scanty and yellowish brown ; paroxysms of intense spasms, succeeded by dull pain ; intense nausea ; alternate constipation and diarrhœa, chill and faintness. The use of these medicines is generally followed by a remission of the acute symptoms, and often by complete subsidence relaxation of the spasm takes place ; the expulsive power of the gall-bladder and diet ensues—and the obstruction is overcome. A dose of aconite and chamomilla or aconite and podophyllum alternately every quarter of an hour during the severity of the pain ; then every hour.

Nux vomica.—Sudden invasion of most excruciating pain at the pit of the stomach, nausea, vomiting, violent, spasmodic contraction of the muscles of the abdomen, coldness of the extremities and profuse cold perspiration. Full dose every half an hour.

The Karlsbad, Kissingen, Vichi or Pulna waters are recommended to those, subject to gall stones.

Although in natural and healthy childbirth—no derangement should follow, yet we frequently find a number of unpleasant symptoms, generally arising from maltreatment. Among these we may mention a thickening of the abdominal coats, occasionally ending in a pendulous appearance.

General Causes.

Abdominal deformity is commonly found in women who have borne many children—or who are predisposed to corpulency. It is found especially difficult of treatment when tight stays have relaxed the abdominal muscles, by so doing increased the tendency to the affection. It may ensue as the consequence of a strain upon the muscles of the abdomen during pregnancy.

Treatment.

An elastic bandage laced at the back and exerting an equal pressure over the whole of the abdomen may be worn with advantage. In some cases where there is tendency to this affection, recourse to mechanical aid of a properly constructed apparatus has been used with great success. But we would, in the most emphatic terms, warn any one against their use during pregnancy—as such a measure is calculated to entail injury upon the offspring. Spare diet, and regular exercise must in all cases be observed. The mechanical aid before attended to, transfers the weight of the abdominal support to the shoulders.

Homœopathic treatment.

Rhus toxicodendron should be both internally and externally applied when the pendulous condition is distinctly traceable to a strain of the muscles.

Application. Add one (1) teaspoonful of concentrated tincture of *rhus toxicodendron* to four (4) tablespoonfuls of water, and apply this lotion to the parts by means of gentle friction, twice a day for four days, unless the lotion should prove irritating.

Rhus toxicodendron should be administered internally, simultaneously with its external application. A dose, night and morning for a week.

Sepia is to be preferred, in the generality of cases, when the enlargement cannot be traced to the cause above mentioned, and when the patient exhibits the traces of an enfeebled or scrofulous condition, or has been subject to menstrual irregularities, or has suffered from green sickness or whites. A dose, night and morning for a week.

Calcarea carb is an important agent to correct the occasional obesity, and is more especially serviceable for lymphatic subjects. A dose, the first thing in the morning. Great care should be taken that the diet be light and easily digestible food. A daily sponge bath followed by vigorous rubbing should be persisted in.

BLOOD AND BLOOD VESSELS.

MORBID CONDITION OF THE BLOOD AND BLOOD VESSELS.

Briefly under this head I shall consider two or three conditions of the blood and blood vessels that are not *per se* diseases of the blood or its vessels; since blood diseases, so called, are but abstractions, while there are pathologically morbid conditions of the blood real and numerous; among others we have that known as anæmia.

ANÆMIA.

A name given by Andral to an improverished condition of the blood, arising from deficiency in volume either from disease or hemorrhage; or from a want of some of its important constituents, particularly those forming the albuminous substances and the red corpuscles. These deficiencies may arise from loss of blood; excessive suckling of child; diarrhœa, possibly leucorrhœa; typhoid or other fevers; long exposure to malarial influence; particular among the poor, from deficiency of food, light, warmth and fresh air.

In its chronic form we have what is termed chlorosis or green sickness.

There are two forms of this disease, one suddenly and the other gradually introduced. The former may be called acute, the latter chronic anæmia. Under these names they are here considered.

ACUTE ANÆMIA.

This consists in sudden diminution of the mass of blood produced by copious bleeding or profuse hemorrhage. The whole volume of the blood is lessened, while its ingredients bear to each other the ordinary relation. It has its origin

usually either in venesection, spontaneous hemorrhage, ruptured aneurisms, ulceration or sloughing of the larger vessels, bleeding from wounds, or flooding in child-birth. The treatment consists of means calculated to arouse the failing or suspended actions of life, and, when immediate danger is passed, of such as tend to supply the deficient blood.

CHRONIC ANÆMIA, OR CHLOROSIS.

This is not an unfrequent attendant upon other diseases which have the effect of impairing the processes of digestion and sanguification, or draining the system of its blood; but it also appears to have occasionally an independent existence. It therefore merits distinct consideration. One of its most ordinary forms is that usually designated by the name of chlorosis, or green-sickness. Some authors consider this as a distinct affection from true anæmia; but even these place its characteristic feature in poverty of the blood; and it would be difficult to point out a single essential phenomenon in the complaint which may not be traced to that source. The circumstance that it generally occurs in girls or young unmarried women would only prove that there are circumstances in their situation peculiarly operative in the production of the disease, and not that there is any thing peculiar in the disease itself. Nor is chlorosis confined to girls, or even to the female sex. The authors who treat of it as a distinct affection, acknowledge that it is sometimes met with in married women and in males of delicate constitutions, especially about the age of puberty. In these latter cases, there is scarcely a shadow of distinction between it and anæmia, proceeding from causes which leave no doubt as to its nature. I shall therefore consider it under the present head.

Symptoms.

When the complaint is fully formed, there is commonly universal paleness of the skin; the lips, tongue, and mucous surfaces in general are also strikingly pale; there is extreme

whiteness of the conjunctiva ; and the whole surface of the body appears bloodless. Sometimes the face is yellowish or sallow, and has a waxen aspect. With this change of color, there is often a puffiness of the face, especially of the eyelids ; the skin seems semi-transparent, and when the fingers are held up, the light shines through their edges. The lower extremities are apt to be edematous. The patient is feeble, and cannot bear much exertion, to which also he is usually indisposed. The circulation is irregular but almost always weak. The pulse is often full, frequent, and thrilling or vibrating ; but it is soft and easily compressed, showing a want of energy in the heart's impulse. It is almost always greatly quickened by bodily exercise or mental emotion. When the patient is entirely quiet or in a recumbent position, it is often small, rather slow and feeble. Palpitation of the heart is a common symptom. It is sometimes continuous, sometimes irregularly intermittent, and may be induced by the slightest causes, mental or physical. Violent exertion often throws the heart into the most tumultuous action. The nervous system is often greatly disordered. Vertigo, dizziness, and a feeling of faintness are very common ; and spasmodic movements of the muscles, sometimes amounting or convulsions, are not infrequent, especially in females. Violent and obstinate neuralgic pains in the head, side, breast or other parts of the body, are also frequent attendants upon the disease. The secretions are sometimes diminished ; and, associated with this condition, are extraordinary dryness of the skin, brittleness of the nails, and harshness of the hair. In other cases, on the contrary, there are profuse and exhausting sweats. In females, the menses are almost always either altogether wanting, or greatly deficient, being scanty and light colored or even serous. The bile is also frequently scanty ; and costiveness, with unhealthy evacuations, a dyspeptic state of stomach, are extremely common symptoms.

In its earlier stages, the disease is usually very manageable, and, when there are no organic complications and the

patient can be withdrawn from the continued influence of the causes, may in general be cured, or at least placed in a fair way of recovery, in a period of time varying from two to four weeks. Under opposite circumstances, especially when improperly treated, it may terminate fatally. When long continued, it is apt to induce dropsy, and probably also organic disease of the heart. The excessive action into which this organ is constantly thrown by the calls from the capillaries for a more rapid current of blood to supply the deficiency of nutritive material, leads to its enlargement, while defective nutrition renders it soft and flabby.

Treatment.

In the treatment of this disease it is of the utmost importance to remove the causes. While these continue to act, the use of remedies will be of only temporary benefit. Should the digestive system be in disorder, it must be corrected; constipation must be obviated; any hemorrhage or other drain which may exist must be arrested; the menses, if retained, suppressed, scanty, excessive, or otherwise irregular, must be restored to the healthy state; and, in general, any other existing disease which may impair the digestive and assimilative processes, or debilitate the system at large, must, as far as possible, be removed. The modes of treatment which may be necessary for these purposes are given under the heads of the affections respectively to be corrected, and need not be repeated here. The closest attention must be paid to the peculiar circumstances of the patient; and whenever any moral cause can be discovered to which the complaint may in part or wholly be ascribed, efforts should be made to obviate its influence by exercise in the open air, and especially on horseback, should be encouraged; the patient should sleep in well-ventilated apartments; and the ill effect of irregularities of temperature should be prevented by flannel next the skin. All these measures, by invigorating the general health, will have a tendency to produce a more copious supply of well-conditioned

blood. The same end will be promoted by a nutritious and digestible diet, such as that recommended in cases of dyspepsia.

The medicines best adapted to the disease are tonics, and especially the chalybeates, which, besides an invigorating influence over the process of digestion and the vital processes generally, have a peculiar power of increasing the richness and redness of the blood, by an operation not exactly understood. They produce, indeed, the very effect that is more wanted in this disease—an augmentation, namely, of the proportion of red corpuscles. Hence the preparations of iron have been long considered almost as sovereign remedies in chlorosis. It matters little which of the preparations is employed, provided the iron finds access into the system. That one should be selected which irritates the stomach least, and is most readily absorbed. When the case is one of pure anæmia, the chalybeates alone, united with a proper diet, will be sufficient for the cure. If anæmorrhœa exist, aloes is the appropriate laxative, and should be given with each dose of chalybeate in the quantity of one (1) and two (2) grains. The mineral acids are sometimes useful when the appetite is very languid; and if the liver is functionally deranged the nitro muriatic acid should be selected.

The severe neuralgic pains which often attend the complaint may be relieved by chloroform liniment or blisters applied near the seat of the affection, and if necessary, sprinkled with morphia after the removal of the cuticle.

It will often be found useful, in order to hasten or confirm convalescence, or even as a remedy in obstinate cases to send the patient upon excursions to chalybeate springs at a distance from home, so as to combine with the medicinal effect of the iron the happy influence of exercise, pure air, novelty of scene, and the enjoyment of agreeable society. Unless complicated with serious organic lesions, the disease may generally be cured, or very materially relieved, by the means above detailed, in a period of time varying from two to six weeks.

Schwarz considering that the cause of death from hemorrhage, and in general the cause of acute anæmia, is the deficient filling of the vascular system and consequent diminution of blood pressure, has performed a number of experiments on rabbits and dogs to show the use of the transfusion of an alkaline 6 per cent. solution of common salt. He finds that the transfusion of a large quantity of this solution even without previous hæmorrhage, produces no bad effect, and that, after sudden and severe hemorrhage, it prevents death, and even brings round animals at the point of death.

The following prescriptions have also been found very useful :

Reduced iron,	. . . . .	12 to 60 grains.
Pepsin,	. . . . .	36 "
Phosphate of zinc,	. . . . .	18 "

Glycerine sufficient to make a mass. Divide into twenty-four (24) pills, silver or capsule them, or order two to be taken every day at dinner. To be used when anæmia is accompanied with weakness of the digestive organs. When anæmia is defendant upon syphilitic taint the following is useful.

Tinc. chloride of iron,	. . . . .	1½ drachms.
Chlorate of potassium,	. . . . .	2 drachms.
Solution of arsenic,	. . . . .	15 minims.
Water,	. . . . .	8 ounces.

⅓ part three or four times a day in a wineglassful of water.

The following receipts are recommended by Dr. Pancoast, of Philadelphia. They are to be taken on alternate days; that is, take No. 1 on one day, No. 2 the next day, and so on.

No. 1.—Precip. carbonate of iron,	. . . . .	5 drachms.
Extract of conium,	. . . . .	2 "

Balsam Peru,	. . . . .	1 drachm.
Oil cinnamon,	. . . . .	20 drops.
Simple syrup,	. . . . .	8 ounces.
Pulverized gum arabic,	. . . . .	2 drachms.

Mix. Dose, two (2) teaspoonfuls three times a day, every other day after meals. Shake before using.

No. 2.—Tincture of nux vomica,	. . . . .	1 drachm.
Syrup iodide of iron.	. . . . .	1 ounce.
Simple syrup,	. . . . .	4 ounces.

Mix. Dose, one (1) teaspoonful three times a day, every other day, in water after meals. Another treatment is as follows:

Clear the bowels with the following mixture :

Sulphate of magnesia,	. . . . .	1 ounce.
Nitrate of potash,	. . . . .	10 grains.
Extract of liquorice,	. . . . .	1 scruple.
Compound infusion of senna,	. . . . .	5½ ounces.
Tincture of jalap,	. . . . .	3 drachms.
Spirit of sal volatile,	. . . . .	1 drachm.

Mix. Dose, two (2) or three (3) tablespoonfuls at a time at intervals of two hours, until an effect is produced.

This is to be followed by sulphate of iron, five (5) grains ; extract of gentian, ten (10) grains.

Make into three (3) pills, and take one (1) pill twice a day, with the compound aloes or rhubarb pill every night.

Homœopathic treatment.

Pulsatilla.—For those of a mild and easy disposition, who are given to sadness and tears, or if cold and exposure were the causes of the disease.

Bryonia.—May be given in alteration, with *pulsatilla*, when there is frequent congestion of the chest, constipation and bleeding from the nose.

Ferrum.—Great debility.

Sulphur.—Obstinate cases, when the above remedies have not afford relief.

Calcareo carb.—Suitable after sulphur, especially when the emaciation is very great, and there is great difficulty of breathing.

China and carbo veg.—A dose, alternately, every evening for five or six weeks, when the disease occurs after severe sickness, or after hemorrhage.

Administration of remedies.

Of the remedy chosen, give five (5) or six (6) globules, dry, once in four hours. If improvement sets in, lengthen the intervals to twelve hours, or two or three days.

Diet.

The diet should be perfectly plain and nutritious. Avoid all stimulants and highly seasoned food. Coffee, green tea and liquor should be forbidden.

General treatment.

If we take into consideration the fact that the cause of the disease is an impoverishment of the blood, the treatment will not be difficult.

Exercise freely in the open air ; protect the body from chilliness by warm clothing and plenty of it. The patient should sleep on a mattress, in a well ventilated room.

The diet should be nourishing without being stimulating. It is important that the habits should be regular, and the mind kept cheerful by society and innocent amusement. Before the medical treatment is commenced, the exciting cause of the disease must be removed. A complete change must be made in the existence of the patient. If she is confined closely at school she must be removed; if she is inclined to confine herself to the house, send her to the country. Picture to her the danger she is in, by the continuance of such a life ; give her plenty of out door exercise. The

mental and moral causes are the most difficult to remove, but a change of scenery and new friends will do much towards it. For those who are shut up in factories, or who work all day in a stooping position, a change of employment must be made. A bath of tepid water in the morning followed by a brisk rubbing will be beneficial. Also the frequent use of the sitting bath, and the sponge bath in the evening. Active exercise should precede and follow all baths. During menstruation all applications of water should be omitted.

SCURVEY.

Scurvey is a disease extremely rare in civil practice. While notwithstanding its characteristics are so generally well known we are yet in ignorance as to the nature of the the blood and tissues which precede and accompany the development of this disease. Mr. George Busk in a series of analyses of blood drawn from persons afflicted with scurvey showed that there was considerable diminution of the red blood corpuscles, an increase in the amount of fibrin and albumen and no decrease in the amount of potash salts. This is about as much as has been learned. It is brought about by being deprived of fresh vegetables, it is also promoted by exposure, cold, over fatigue, mental anxiety, etc.

Treatment.

It is one of those conditions where medicine avails but little. Good fresh vegetables being of far greater service in restoring nature to its wanted equilibrium. Lemon and lime drinks are excellent. Lime juice is now prepared and taken in quantity on vessels undertaking long voyages, particularly those going into high latitudes. Potatoes, tomatoes, turnips, onions, etc., are excellent as diet. As an adjuvant, the medicine enjoying the highest repute, as an agent indicated is perhaps the tinc. chloride of iron in moderate doses. Say five (5) to twenty (20) drop doses thrice daily in milk, glycerine or water. Occasionally citric acid is serviceable. For soft spongy gums, a wash of a solution of tannin will

harden the gums and give firmness to the teeth. For like purpose tinc. of myrrh dilute with glycerine is excellent. Salt and whisky is a good preparation with which to bathe the body for the removal of the numerous purple spots in the skin.

VARICOSE VEIN.

A varicose vein is generally of a blue color, sometimes of a brownish hue, is considerably increased in size, appears knotted, irregular, and winds in a serpentine manner beneath the skin. Sometimes several veins enlarge in this manner within a small space, and appears coiled up, or as it were, interlaced with each other, so as to form an irregular dark blue colored tumor under the skin. In other cases, the enlargement or dilatation is partial; round, circumscribed, elastic swellings, or knots, appear at irregular distances along the course of a vein. Varicose veins increase in size, when the individual is engaged in any active exercise, or continues long on his feet; whereas, on the other hand, repose, the horizontal position, and pressure, cause them to diminish, or disappear altogether.

All veins are not equally liable to this disease; those which are deeply seated in the limbs, or in the internal parts of the body, very seldom become varicose; this morbid alteration of structure is, on the contrary, very common in the veins situated immediately under the skin. The superficial veins of the legs and thighs are most subject to this disorder. Those on the fore-part of the abdomen, and about the scrotum, are not unfrequently affected; but it seldom attacks the veins of the arms. When the veins about the lower part of the rectum and anus become varicose, the disease is then called piles,

At the commencement of the disorder, one or more veins, commonly one of the lower extremities, sometimes of both, are observed to be larger than natural, but not attended with pain or any inconvenience. The dilatation and change of structure of the vessels advance very slowly. A year or two,

or even a much longer period, may elapse before the patient is induced to pay particular attention to the disease. At length he observes, after walking or remaining long on his feet, that the veins become considerably distended, while the skin over them feels tighter than natural. Resting in the recumbent position soon removes these symptoms, but they are readily brought on again by the same causes. The veins being frequently distended in this manner, at last become permanently dilated, acquire a tortuous appearance, and roll under the skin. As the disease advances, the patient after any active exercise, experiences a painful sensation of tension in the dilated veins, accompanied with numbness, swelling, and perhaps shooting pains in the limb, which may render him for a time incapable of walking. These symptoms are always aggravated towards night, and again diminished in the morning.

Nature alone sometimes subdues and expels this disease. In other cases again, it continues to get worse, and occasions disorders of the limb, of the most serious nature. But in the majority of cases it remains almost stationary ; and although it may give rise to considerable pain at times, is rather to be considered as an inconvenient and troublesome affection than important or dangerous.

The accidents to which this disorder may give rise, are loss of blood from perforation or rupture of the vein ; the formation of painful ulcers over the affected parts ; and sometimes inflammation of the veins.

Treatment.

We know very little of the nature and causes of varicose veins, and are equally ignorant of any effectual method of curing them ; but it has, nevertheless, been proved by experience, that we have it greatly in our power to retard the progress of this affection ; to alleviate the pain, and to reduce the swelling by a properly-regulated and permanent compression. For this purpose a laced stocking is generally employed ; and this with the rest in the horizontal position, are the grand means of palliating the disorder.

When the veins or the adjacent parts become inflamed, and painful, leeches should be employed, and vinegar and water, Goulard water, or any other cold lotion, ought to be constantly applied to the parts. Sometimes cold applications do no good ; in such cases, bathing the part with a warm decoction of poppy-heads, or warm water with laudanum, will be found serviceable, and more agreeable to the feelings of the patient. The bowels should be freely opened, by means of calomel and jalap, followed by seidlitz powders, epsom salts or any other cooling saline purgatives. Low diet and quietude in the recumbent position, are to be strictly enjoined, until the inflammation be entirely subdued.

The application of a ligature round the diseased veins, burning them with caustic, and similar modes of treatment have been successfully employed in many cases ; but none of them are free from danger, and should never be employed unless in extreme cases. The treatment for varicose ulcers is the same as for other ulcers.

Homœopathic treatment.

A weak solution of arnica, hamamelis, may be used to advantage. Apply at night before retiring, always rubbing the limb upwards.

Nux vomica.—When the disease is attended with piles, constipation, frequent bearing down pains, and irritable temper.

Pulsatilla.—The principal remedy, especially when there is much swelling of the veins, and of the whole limb, with severe pain and considerable inflammation.

Arsenicum.—When the swelling is of a livid color, with a good deal of burning pain. If this does not relieve, give carbo veg.

Accessory treatment.

Rest, and a bandage when they are very painful, with soft but well fitting elastic stockings, constantly worn afterwards. Patients subject to varicose veins should avoid

standing as much as possible. Poultices of salt and nitre help to remove hardness of the veins.

THE CHEST,

DISEASES OF AND THEIR TREATMENT.

COLDS AND COUGHS.

Quite frequently we hear some one say that they have a bad cold and cough. In fact there is scarcely one but suffers one or more attacks during the year. By the term cold, in this connection we mean a partial arrest of the secretions and a sub-inflammatory condition of the mucous membranes. This condition is promoted by any exposure that will cause the arrest of the excretions of the skin, whereby the morbid matter that, in health, is carried out through the pores of the skin, is thrown back, so to speak, into the system, compelling a reaction to restore the system to its normal condition.

Symptoms.

Symptoms vary with the form or locality of the parts affected by the attack ; in an ordinary attack we have usually an obstruction of the nasal passage, headache, pains in body and limbs, constipation, a sense of constriction in the chest, difficult respiration, etc. The cough accompanying cold is a spasmodic effort by a sudden and violent expiration for the purpose of expelling some annoying substance from the air passages.

Colds may affect different people differently ; attacking the weakest point. The name is given from the organ on which it settles ; in the head, "a cold in the head ;" in the nose, "catarrh," in the throat, "croup" in children, "quinsy," in grown people ; cold in the lungs is called a "common cold," if severe, "pneumonia."

If in the covering of the lungs we have "pleurisy." If in the branches of the wind pipe "bronchitis." If it settles all over the body, we call it "a bilious attack." If a cold attacks the covering of the bowels, known by a dull pain, increased by a long breath, it is "peritonal inflammation," getting worse for three mornings in succession, ending in death or recovery.

Colds sometimes attack the bowels causing thin and frequent discharges; in this case the cold is said to have run off through the bowels, and is one of the easiest and speediest ways of getting rid of a cold; hence persons who have a cold, and during the first twenty-four hours use means to have several free actions of the bowels, cut the cold short and are well in a few days. A common cold has its course to run like other diseases, requiring about two weeks, if it is not renewed; but if proper measure be adopted to cure a cold within thirty-six hours after it has been taken it can almost always be cut short and will disappear within three or four days.

You will therefore see that the common cold is the forerunner of many of the ills of life, and I would advise that at the earliest moment possible measure be taken to rid yourself of it. The safest, most promptly and certain method of curing a common cold, is to go to bed within twelve or fourteen hours after it has been first taken, and stay there until cured, observing,—

First.—Keep abundantly warm all the time, with the hands under the cover.

Second.—Drink nothing but hot teas, eat nothing but coarse and crust bread softened in the tea, with raw fruits or berries in their natural state, at intervals of five or six hours during daylight.

Third.—Keep the bowels acting freely, at least twice a day, by such means as are most familiar. It is impossible that this treatment should fail to cure a cold under any ordinary circumstances, if fairly tried and with sufficient promptness, because the pores of the skin are kept open by

the warmth, and give exit to the ill humors in the system, and prevents fevers.

The grosser wastes of the body are conveyed away by the free action of the bowels, whilst the supply of phlegm is cut short by the moderate and light cooling diet. For let it be remembered that every mouthful of solid food swallowed after it has been taken, protracts the cure that much by furnishing material to be converted into phlegm, which must be coughed up before a cold can begin to get well. A judicious attention to these suggestions will prevent much human suffering, and save many a life from being prematurely cut off. A few words of advice as to the prevention of colds.

The normal temperature of the body, which is in adults of the Caucasian race 98.6° , is maintained in defiance of external cold by the combustion within the body of heat-producing food. If the combustible materials are not furnished, or if oxygen be not supplied in sufficient quantity, the temperature will be depressed. Hence the vital importance of having pure air in addition to wholesome food. Persons habitually exposed to cold weather suffer far less from it than those who only occasionally leave their houses. Mail-carriers, physicians and others whose business takes them out of doors and keeps them there most of the time, rarely suffer from cold or colds. They make a point of having requisite clothing and suitable food, and as the open air keeps the blood pure, quickens the appetite and promotes digestion, their internal heating apparatus is kept in good condition. The more persons "coddle" themselves the more susceptible to cold they become, and slighter exciting causes induce colds.

A cold bath every morning followed by vigorous rubbing lessens one's susceptibility to cold and diminishes the chances of indispositions from its effects. This bath may be very brief, and taken in a warm room if the person taking it is debilitated. The habit once formed during warm weather is easily kept up throughout the year, and with great advantage.

Colds result from unusual exposure of the body to cold.

Damp clothes, causing greater evaporation from one part of the body than another, are a fruitful cause of colds. If vigorous exercise is kept up, so that the internal production of heat keeps the body up to the normal point of temperature, no harm follows. One can work all day in the rain or snow without inconvenience, but a half hour sitting with damp feet has brought many a person to his grave. Draughts are prolific sources of colds. A current of air from the window, a draught through a keyhole or the crack of a door, are dangerous things. One may go out into snow or cold with impunity, yet fall before a broken window-pane to rise no more.

When one is conscious of having taken cold, measures should be taken as soon as possible to equalize the temperature of the body and to throw off the effete matters which in consequence of the inflammation caused by the cold, have settled on some one or more parts of the body—always the weakest part. A hot foot-bath accompanied by hot drinks and a warm, even temperature, will, if taken in season, often avert most serious consequences. Sub-acid fruits eaten in connection with this mode of treatment are very useful. The aim should be to open all the natural excretories of the body of its own motion; it may remove the foreign matters that clog its membranes and tissues. Hot lemonade, hot sage-tea, and any drinks that promote perspiration are good. Cold in the head is an inflammation of the lining membrane of the nasal region, and is likely unless checked to extend down till it reaches the throat and bronchial tubes, inducing cough and lung trouble. The quickest way of checking this trouble is to keep in an unvarying temperature until nature cures itself, meantime abstaining from food or eating only acid fruits. When the lungs become affected, hot foot-baths, and mustard plasters applied over the lung, either on the chest or between the shoulders, will draw the blood to the extremities and surface and give immediate relief. Mustard plasters applied to the soles of the feet or to the ankles and wrists have the same effect. Cloth wrung from soda or

saleratus water and fastened about the chest covered with flannel to exclude the air and retain the moisture, give relief. One can sleep in these all night with advantage. All these devices are within the reach of every housekeeper, and if resorted to in season will often prevent the necessity of calling in a physician. And then, when it can be done, it is better to apply remedies to the outside of the body than to the inside, and leave the wondrous interior mechanism to regulate itself without any aid from poisonous drugs. We need to remember that pneumonia, bronchitis, pleurisy, quick consumption, all begin with slight colds; colds so slight that the patients think "they are "not worth minding;" "they will wear off in a few days." One of our brightest and most promising scientists died recently of a neglected cold. If we take care of the beginning of disease we shall find the task easy. If we neglect them medical skill may be powerless to aid us.

1. Roast a large lemon carefully without burning; when it is thoroughly hot, cut and squeeze it into a cup upon three ounces of sugar candy finely powdered; take a spoonful whenever your cough troubles you. It is easy to be obtained, pleasant to take, and in very many instances will prove a perfect remedy.

2. Take two ounces of syrup of poppies, as much conserve of red roses; mix, and take one teaspoonful for three nights when going to bed.

3. Make a strong tea of alhoof, sweeten it with sugar candy, pour this upon a white toast well rubbed with nutmeg, and drink it first and last.

4. *For a cough with hoarseness.*—Syrup of jujubes and olthea of each two ounces, lohock savans one ounce, saffron and water flag powdered, of each a scruple; lick it off a liquorice stick when you cough.

5. *For a consumptive cough.*—Take half a pound of double refined sugar, finely heat and sifted, wet this with orange water and boil it to a candy, then stir in an ounce of casia earth powdered, and use it as other candy.

6. *To cure a cold with a cough.*—The editor of the Baltimore Farmer and Gardener says the best remedy he ever tried in his family for a cough or cold, is a decoction of the leaves of the pine tree, sweeted with loaf sugar, to be freely drank warm when going to bed at night, and cold through the day, or, take a large teaspoonful of flax-seed with half an ounce of extract of liquorice, and a quarter of a pound of sun dried raisins. Put it into two quarts of soft water, and let it simmer over a slow fire till it is reduced to one; then add to it a quarter of a pound of brown sugar candy, pounded, a tablespoonful of white wine vinegar, or lemon juice. N. B.—The vinegar is best to be added only to that quantity you are going immediately to take; for if it be put into the whole it is liable in a little time to grow flat. Drink a half pint on going to bed, and take a little when the cough is troublesome.

This receipt generally cures the worst form of colds in two or three days, and if taken in time may be said to be almost an infallible remedy. It is a sovereign balsamic cordial for the lungs without the opening qualities which engender fresh colds on going out. I have known it to cure colds that have almost settled into consumption, in three weeks.

Dr. F. F. Houston writes: "For fresh cold in the head, accompanied with obstruction in the nasal passages and constriction in the chest.

Carbolic acid,	.	.	.	.	.	1 drachm.
Absolute alcohol,	.	.	.	.	.	2 drachms.
Water of ammonia,	.	.	.	.	.	1 drachm.
Distilled water,	.	.	.	.	.	8 drachms.

Make a cone of writing paper; put a small piece of cotton in it; drop on the cotton ten (10) drops of the mixture, and inhale until all is evaporated. Repeat every two hours until relieved."

Borax in hoarseness.—This salt has been employed with advantage in cases of hoarseness and aphonia occurring

suddenly from the action of cold. The remedy is recommended to singers and orators whose voices suddenly become lost, but which by these means can be recovered almost instantly. A little piece of borax, the size of a pea, is to be slowly dissolved in the mouth ten minutes before singing or speaking. The remedy provokes an abundant secretion of saliva, which moistens the mouth and throat. This local action of the borax should be aided by an equal dose of potassium, taken in warm solution before going to bed.

Having been induced to try Dr. Beard's specific for a cold which he calls "cold powder"—and finding it excellent if taken early in the attack, have thought it best to introduce it here.

The formula for making it is as follows :

Camphor,	. . . . .	5 parts.
Powdered opium,	. . . . .	1 part.
Carbonate of ammonia,	. , . . .	4 parts.
Quinine,	. . . . .	6 "

Dissolve the camphor in either to the thickness of cream, then add the opium, ammonia and quinine. The preparation should be kept in a bottle tightly corked or in capsules. It should usually be given at night before retiring or in small doses during the day. Dose, from three (3) to ten (10) grains, or from an eighth to a third of a common thimble in a little water. It should be kept on hand at all times, and should be taken as soon as possible after becoming chilled through or even suspect that you have taken cold. The dose may be repeated the following night or during the following day.

Dr. Prout of Brooklyn gives the following prescription. Muriated tincture of iron in one half ($\frac{1}{2}$) teaspoonful doses every three hours—taken through a glass tube, well diluted with water. It dries up the secretions in the nose in a few hours.

The following powder snuffed up the nose occasionally is often beneficial.

Subnitrate of bismuth,	. . . . .	4 drachms.
Powdered gum arabic,	. . . . .	1 drachm.
Morphine,	. . . . .	2 grains.

Homœopathic Treatment.

Aconite.—Violent, short cough, pricking in the chest. A dose every two or three hours, until the pulse and skin manifest the febrile disturbance.

Belladonna.—Short, dry barking, spasmodic or nervous cough at night, in bed and also during sleep. Also useful in cold with rattling phlegm on the chest. A dose every three hours.

Hyoscyamus frequently answers when belladonna has only afforded partial relief, especially for dry, tickling night cough. A dose at bed time, and every two or three hours, if required.

Nux vomica.—Valuable in cases where there is a dry hoarse, fatiguing and somewhat spasmodic cough in the morning. A dose every three hours.

Bryonia.—Catarrhal cough in winter or spring. Also in dry nervous cough. A dose every two or three hours.

Gelseminum.—Burning in the larynx and down the chest; soreness in the chest when coughing; tenderness at the pit of the stomach. A dose every three or four hours.

Mercurius.—Catarrhal cough with diarrhœa. A dose every two hours; two doses at night and two in the morning.

HEMORRHAGE FROM THE LUNGS, OR SPITTING BLOOD.—(*Hemoptysis*.)

This disorder may come on suddenly when the patient least expects it; but in general it is preceded by symptoms of congestion of the lungs. A sensation of tightness, heat, and itching is felt throughout the chest, or at some particular part of it, accompanied with difficulty of breathing and a

feeling of anxiety. The pulse may be felt jerking or vibrating under the finger, the patient experiences frequent chills alternating with flushes of heat, his extremities are cold, and he feels languid. When the blood has escaped from the vessels, and is thrown loose into the air passages, a sense of ebullition or bubbling is felt in the chest, arising from the air coming in contact with the blood during the alternate movements of inspiration and expiration ; at the same time there is often a saltish taste in the mouth, and the difficulty of breathing is increased. At length the irritation in the air passages produces cough, which is followed by expectoration of a greater or less quantity of blood. Sometimes the titillation excited in the windpipe and throat causes the contents of the stomach to be thrown up, and, as these are mingled with blood, we might at first suppose that the hemorrhage has proceeded from the stomach. But in most cases the red vermilion color and frothy appearance of the blood, and the previous symptoms of internal disease, are sufficient indications that the lungs are the source of the hemorrhage. The extent of the discharge varies greatly ; many cases are on record where persons have ejected considerable quantities of blood from the lungs, periodically, for years, and yet have ultimately recovered ; but in persons of a scrofulous or tuberculous constitution the slightest expectoration of blood is a symptom of fearful omen.

Women are more subject to spitting of blood than men, owing in great measure to the facility with which the menstrual flux is obstructed from various causes. When that important function is suppressed, or ceases to be performed, the superabundant blood sometimes seeks its way out of the body through other channels ; occasionally it escapes from the blood-vessels of the lungs into the air passages, and is coughed up without causing pain or much inconvenience. This may continue periodically for a considerable length of time, perhaps for years, and at last ceases when the natural function of the womb is restored. Many women otherwise in good health are affected with periodical spitting of blood

every time they become pregnant ; but in all cases of this description the discharge, even when profuse, is not to be viewed in so serious a light as when it occurs under other circumstances. Another fruitful source of this disorder in girls is the bad habit of wearing tight stays. When the chest is strongly girt with stays, the natural movements of respiration are impeded, and the blood is retarded in its passage through the lungs ; the abstraction thus produced acts in the same manner as malformation of the chest, organic diseases of the heart, or any other circumstances, which, by mechanically interrupting the balance of the circulation, may cause the blood to stagnate in the lungs until, as not unfrequently happens, it is forced out of the vessels into the bronchial tubes or air passages, and discharged by the mouth. Spitting blood is not the only evil which this artificial system of restraint induces ; the free expansion of the lungs being impeded, the breathing is rendered shorter and quicker than natural, and the air not being admitted in due quantity, the blood is not sufficiently oxygenized, and the whole organization of the body suffers in consequence. The healthy temperature cannot be kept up, the countenance is pale, the feet are often cold, and there is a degree of listlessness and depression which unfits the body for the requisite exercise of its physical powers. This imperfectly vitalized state of the blood prevents the process of nutrition from being adequately accomplished, hence every part of the animal economy is reduced below the standard of healthful vigor, and if any dormant predisposition to consumption be present, nothing will more certainly rouse it into action than this depressed condition of the vital powers, a condition which but too frequently brings on this fatal malady, when no hereditary disposition exists ; and in all cases increases the susceptibility to the impression of other diseases.

The exciting causes of this disorder are numerous. It may arise from any violent bodily exertion, as running, rowing or wrestling, from sudden changes of temper, or from sudden exposure to cold when the body is overheated, and it

may be brought on by any circumstances which debilitate the body and render the circulation irregular. Fatal hemorrhage from the lungs has occurred in some instances from distress of mind.

Treatment.

A safe and excellent popular remedy, frequently employed to check spitting of blood, is common salt. The patient should swallow from a dessert to a tablespoonful, dissolved in cold water, as soon as possible after the hemorrhage begins from the lungs. It is usual to repeat the dose daily, for three or four days, in order to prevent a return of the disease. It always produces a burning sensation as it passes into the stomach, and is followed by considerable thirst; sometimes it excites sickness at stomach.

Absolute rest is the first to be observed in the treatment of this form of hemorrhage. The patient should lie down with his head raised by pillows. He should not talk. The room should be kept quiet and cool; the bed clothes should be light, but sufficient; and warmth should be applied to the feet. A little ice in the mouth, or some iced water to sip, will ease the cough and tend to check hemorrhage. The patient must, if possible, be reassured as to the presence of present danger, and the shock to the system allayed without the assistance of stimulants. Sometimes opium may be usefully given for this purpose, due regard being had to the habits of the patient.

Astringent medicines are always needed. To be really useful they must be given in full doses. Those most used are acetate of lead, four (4) grains every three or four hours; alum, twenty (20) grains, with diluted sulphuric acid, thirty (30) drops every four hours; galic acid, twenty (20) to thirty (30) grains every hour or half hour, for two or three doses, followed by ten (10) grain doses every three hours; oil of turpentine, thirty (30) drops every two hours in sweetened mucilage or milk, for a couple of doses, then in half or third doses, for a couple of doses; liquid extract of ergot, in drachm

or half drachm doses, every two or three hours ; of the above mentioned astringent remedies, alum, sulphuric acid, ergot and the acetate of lead are the best in the greater number of cases. Counter-irritants are of great value in the treatment of many cases of hemorrhage, chiefly in those cases in which the hemorrhage is not great.

The pulse and temperament should be strictly watched. Diet must at first be restricted to cold nutritious fluids ; stimulants, except in special cases must be interdicted. The treatment of false or spurious hemorrhage depends upon its cause. In most cases the cause being anæmia, with a relaxed and morbid condition of mucous membrane, an acid preparation of iron containing some chlorate of potash and glycerine, will speedily cure the malady. When the gums are spongy the addition of finely powdered kino or catechu, to a chalk or charcoal tooth powder, or the addition of some glycerine of tannin to the tooth water will prove efficacious. Astringent gargles will suggest themselves in fitting cases ; and fruit and vegetables must be added to the diet.

When the patient is delicate, and the hemorrhage is not attended with increased action in the system, the feet should be placed in hot water, to which a portion of mustard has been added, and common salt should be administered as above.

We mentioned at the commencement of this subject that spitting of blood may arise from obstruction of the menses, and that when we succeed in restoring this important function, hemorrhage from the lungs does not occur. It must, however, be kept in recollection that spitting of blood rarely occurs from this cause, although for the most part it attacks young women whose menses have been for some time obstructed, and it has been well ascertained that, under such circumstances, both these affections, in the greater majority of cases, result from tubercles in the lungs, as we have occasion to notice in another part of this volume. It is therefore preferable to wait until the advice of a physician can be obtained, rather than to administer stimulating reme-

dies with the intention of bringing back the menstrual discharge. In certain cases where hemorrhage from the lungs occurs in females at the turn of life, when the menstrual discharge is about to cease altogether, the symptoms of this form are often very alarming, but the loss of blood is usually restrained by an assiduous use of the means just pointed out.

Prof. von Gielt uses olive oil in the following manner: The patient's chest is first thoroughly bathed in the olive oil, slightly warmed; then a strip of clean, old and soft shirting, large enough to envelope completely the whole chest, and saturated with the oil, is carefully adjusted. Another piece of dry cloth covers the first; over this can be placed cotton batting or flannel, but usually only the clothing of the patient. This is the only application made by Prof. von Gielt in diseases of the chest where warmth is indicated. The old fashioned and dangerous Indian-meal jacket he strongly condemns. These inunctions of olive oil will be found excellent in all cases where artificial nutrition is sought for. This method of treatment is especially advisable in bronchitis, pleurisy, pneumonia, and pulmonary consumption.

The following is sometimes used for spitting of blood:

Take two (2) spoonfuls of the juice of nettles at night, or take three (3) spoonfuls of sage juice in a little honey. This presently stops either spitting or vomiting blood; or twenty (20) grains of alum in water every two hours.

The following is a simple remedy for the cough frequently following:

The white of one egg beaten to a foam; one large coffee-cup of sugar and juice of one lemon; beat it well. Dose, one teaspoonful every hour until relieved. If the cough is very bad, then four times per day until cured.

The late Dr. Marshal Hall, of England, said: "If I were seriously ill of consumption, I would live out-doors day and night, except in rainy weather or mid-winter; then I would sleep in an unplastered log house. Physic has no nutriment, gasping for air cannot cure you; monkey capers in a gym-

nasium cannot cure you, and stimulants cannot cure you. What consumptives want is air, not physic—pure air, not medicated air—plenty of meat and bread.”

Homœopathic treatment.

Aconite.—When the paroxysm is preceded by fullness or congestion of the chest, with burning pain, and palpitation of the heart, restlessness and anguish on lying down, pale face, copious discharge of blood from the lungs, even with coughing a little.

Ipecac.—Frequent short coughs, taste of blood in the mouth, nausea and weakness, spitting of mucous streaked with blood.

Arsenic.—Palpitation of the heart with great anguish, dry heat.

Opium.—Suitable for persons addicted to liquor, when there is spitting of frothy, thick blood, cough worse after swallowing, oppression and anguish, weak voice, and drowsiness, anxious starting, cold limbs, heat in the chest.

Nux vomica.—Follows well after opium, and ipecac or arsenic, particularly when there is cough, affecting the head, caused by tickling in the chest, when the bleeding is caused by taking cold, or constipation of the bowels.

China.—When the patient has lost much blood ; or when the cough is violent, hollow, dry and painful, with taste of blood in the mouth ; shivering and flushes of heat, weakness, faintness, and dimness of sight.

Ferrum.—May be given after china when this has relieved, but there still remains a slight cough with spitting of scanty, bright red blood, with pain between the shoulder blades ; difficulty of breathing.

Hyosciamus.—Dry cough at night, with spitting of blood ; frequently awaking with a start.

Pulsatilla.—In obstinate cases where black and clotted blood is expectorated, more in the morning or night ; particularly in females.

Arnica.—Slow hemorrhages of black and clotted blood,

with stitching and burning pain, and heat in the chest ; palpitation of the heart ; difficulty of breathing. When the bleeding is caused by injuries, such as falls, blows and lifting, or when the expectoration is clear and frothy ; hacking cough ; tickling under the breast bone. May be given sometimes in alternation with aconite.

Belladonna.—Cough and tickling of the throat with bleeding ; sensation of fullness as if from blood in the chest, with pressing or shooting pains ; worse when moving.

Hamamelis.—Cough and bleeding, with taste as of sulphur in the mouth ; dull pain in the forehead ; tickling cough with taste of blood on awaking ; difficult breathing ; oppression in the lower part of the chest, and fullness of the neck and head.

Administration of remedies.

Dissolve twelve globules in twelve (12) teaspoonfuls of water, and give a teaspoonful every ten or twenty minutes, until the bleeding ceases ; afterwards give at intervals.

BRONCHITIS.

By this term is meant inflammation of the bronchi or tubes, which convey the air into the lungs. When the wind-pipe arrives as low down as the third or fourth vertebra of the back, it divides into two great branches, called bronchi ; one of which goes to the right and the other to the left lung. These branches having entered the lungs, divide, subdivide, and ramify into innumerable small branches, all of which terminate in very minute bags, called air-cells. These air-tubes and cells are lined with a membrane, termed from the nature of its secretion, mucous membrane, which is the seat of bronchitis.

There are two forms, acute and chronic.

Causes.

A most fruitful cause of bronchitis is exposure to cold after the body has been heated by exercise or sitting in a warm

room. This seems to be understood by every one, but it does not appear to be so well known that cold is caught just as readily by changing suddenly from cold to warm air. When the body has been chilled by long exposure to cold, warmth should be restored by degrees. When a person has been in the cold air, he should remain for some time in a room moderately heated, and avoid at first, sitting near the fire. By avoiding sudden changes of temperature any one, however susceptible of catching cold, may take exercise with impunity in the coldest air, provided the surface of the body and the feet are kept warm by suitable clothing.

ACUTE BRONCHITIS.

After exposure to cold, which is the usual cause of this affection, the mucous membrane which lines the nostrils, windpipe and bronchi, becomes slightly inflamed. The consequences of this are dryness and stuffing of the nose, hoarseness, dry cough, and a slight degree of fever, soon followed by expectoration of a thin fluid, a feeling of tightness about the chest, and increase of cough. After some time the expectoration becomes very copious, and of a much thicker consistence; all the feverish symptoms give way, and in the course of few days the cough gradually moderates, and the patient recovers. This is a mild form of bronchitis. It is frequently accompanied by cold in the head, is not of a serious nature, and requires very little medical treatment.

Bronchitis, however, does not always appear in this mild form. It presents a variety of grades, from the slightest common cold to the most acute inflammation, causing symptoms of a character so urgent as to require the most active treatment to prevent a fatal termination.

When severe it commonly commences with hoarseness, slight sore throat, perhaps cold in the head, and the feverish symptoms which usually precede all acute inflammatory diseases, viz., chilliness or shivering, alternating with flushes of heat, lassitude, unwillingness to move about, and pain (or at least a sensation of soreness) in the back and loins. The

pulse is quick and weak, and the urine diminished in quantity. These symptoms are soon followed by headache, hot and dry skin, thirst, foul tongue, quick and full pulse, and scanty urine of a high color. To these general symptoms of fever are added those more peculiar to bronchitis, namely, oppression on the chest, attended with dull pain and heat, a distressing dry cough, and considerable difficulty in breathing. At first there is no expectoration, because the mucous membrane is dry ; but as the disease advances each fit of coughing brings up a thin acrid fluid of a salt taste. As the expectoration increases in quantity, it becomes less acrid and loses its salt taste. It then acquires a thicker consistence, and assumes the appearance of white of egg ; is very viscid, and sticks to the sides of the vessel. The more viscid and tenacious it is, the more severe is the inflammation. The feverish and other symptoms become more severe towards evening, and during the night the patient is very restless, and the fits of coughing continue longer and recur more frequently than during the day. About the sixth or seventh day the expectoration begins to grow thicker and more opaque, and the difficulty of breathing and lightness at the chest gradually diminish. At length the expectoration acquires a yellow or greenish color, and is brought up easily, the sensation of heat within the chest is no longer felt, and the cough is not so frequent or troublesome, except on awakening in the morning, when it continues until the mucus which has accumulated in the air passages during the night is freely discharged.

Bronchitis seldom terminates fatally unless complicated with other diseases ; but when it attacks a great part of the nervous membrane of the air passages of one or both lungs, and extends to the smallest air-tubes, it is not unattended with danger, and in old people and children it frequently proves fatal. In such cases the breathing becomes much oppressed, a wheezing or rattling noise is heard in the chest, and there is great prostration of strength. The mucus accumulates in the air-passages, and the patient has no longer

strength to cough it up. The face and lips then change from deadly pale to a livid color, the pulse is small and quick, cold clammy sweats break out on the body, the extremities become cold, and the patient sinks.

CHRONIC BRONCHITIS.

Is almost invariably the result of the acute form, and is generally met with among old people, and those of weak habit of body. It differs from the acute form in the mildness of its symptoms, and in its longer duration. There is cough and profuse expectoration of an opaque, white, yellow or greenish matter of a loose consistence, not resembling the viscid discharge of the first stage of the acute form. In many cases there is a slight degree of feverish excitement during the day, which increases a little towards night; but fever is not a characteristic symptom of the chronic form, unless in the worst cases, when it comes on in the evening, followed by night-sweats and other hectic symptoms. The cough is most troublesome during the day, and on awaking in the morning it continues for an hour or two, followed by very copious expectoration. One may labor under chronic bronchitis for years without the general health being much impaired, but in most cases, when it continues long, habitual shortness of breathing, wheezing and oppression in the chest ensue; and these symptoms are aggravated on going up stairs, or in using any particular personal exertion. With many persons chronic bronchitis is of so mild a character that they scarcely consider it a disease. In other cases, the patients are completely worn out by the cough and excessive expectoration.

Treatment.

An attack of bronchitis may be sometimes broken by taking on going to bed a glass of lemonade, or ten (10) grains of Dover's powders following a warm mustard foot bath. Should this fail, give a dose of epsom or rochelle salts, or citrate of magnesia. If the fever is high, the cough tight and the breast sore, the following may be given:

Tartrate of antimony,	2 grains.
Potassa,	2 "
Water,	4 ounces.

Mix. Dose, one (1) or two (2) teaspoonfuls every two or three hours. At the same time flax seed tea may be freely drank.

Rubbing oil of turpentine on the chest will sometimes relieve.

In mild cases, syrup of ipecac in doses of one (1) or two (2) teaspoonfuls every two or three hours will sometimes quickly relieve. This may be succeeded by the following :

Nitrate of potassa,	2 drachms.
Oxymel of squills,	1 ounce.
Tincture of digitalis,	$\frac{1}{2}$ drachm.
Vinegar,	1 tablesp'nf'l.
Sugar,	$\frac{1}{2}$ drachm.
Gum arabic,	$\frac{1}{2}$ "

Water enough to make six (6) ounces. Mix. Dose, one (1) tablespoonful every two or three hours.

When the cough is troublesome at night, the following may be taken.

Syrup of squills,	3 ounces.
Paregoric,	1 ounce.

Mix. Dose, one teaspoonful two or three times daily or two teaspoonsful at night.

Hot bran or mustard poultice should be applied to the throat and chest. The following may be taken in a case of troublesome cough.

Oxymel,	1 ounce.
Tincture of henbane,	1 drachm.

Spirits of nitre,	. . . . .	1 drachm.
Ipecac wine,	. . . . .	1 drachm.
Cinnamon water,	. . . . .	2 ounces.
Water enough to make six (6) ounces.		

Mix. Dose, one (1) teaspoonful two or three times a day.

Treatment of chronic bronchitis.

Apply three (3) drops of croton oil to the chest, every night until there is an eruption.

Plasters of Burgundy pitch, upon which a very little cantharides (Spanish flies) are sprinkled are sometimes beneficial. The following will be found to relieve the cough in some cases :

Balsam of copaiva,	. . . . .	3 drachms.
Compound spirits of lavender,	. . . . .	2 drachms.
White sugar,	. . . . .	2 drachms.
Gum arabic,	. . . . .	2 drachms.
Water, sufficient to make six (6) ounces,		

Mix. Dose, a tablespoonful three times a day. Or this:

Muriate of ammonia,	. . . . .	8 drachms.
Mucilage of gum arabic,	. . . . .	4 ounces.

Mix. Dose, a tablespoonful three times or four times a day.

Inhaling the following vapors when the secretion is very copious, sometimes proves beneficial : vapor of tar, produced by placing an ounce or two of tar in a cupful of boiling water or vapor of creasote, produced by infusing three or four drops of creasote in a half-pint of boiling water.

According to M. Nelsius, in the *Medical Press*, carbonate of ammonia satchets for bronchitis have been found very useful. "Having observed the good effects of the atmosphere of a stable on those suffering from pulmonary diseases,

which are rightly attributed to the emanations of carbonate of ammonia, he thought that continued, yet moderate, respiration of this salt might be useful in other affections of the respiratory organs. After a serious attack of bronchitis, he decided on trying on himself the effects of carrying a little bag around his neck containing little pieces of carbonate of ammonia. From the first day the amelioration was full, and the cough soon disappeared entirely, while often persons who suffered from chronic bronchitis also obtained relief.

The use of little bags of carbonate of ammonia are intended to produce the same result as the air of a stable or a gas works."

The remedy is simple and within the reach of all, and it would be well in either acute or chronic cases to try its efficacy.

Homœopathic treatment.

Aconite.—Generally the best remedy, particularly when there is much fever, with dry skin, pulse rapid and hard, breathing quick and anxious, thirst, throat dry with cough, and tickling sensation in throat and chest, anxiety and restlessness, more or less pain in the chest, particularly at night.

Tartar emetic.—When there are severe paroxysms of coughing, with feeling of suffocation, wheezing respiration, shortness of breath, oppression of the chest, palpitation of the heart, and pain in the back and limbs, thirst.

Pulsatilla.—Moderate fever, heated skin, hoarseness or huskiness, obstructed breathing especially when lying on the back.

Chamomilla.—After the fever is subdued with aconite, but a dry cough remains, worse at night and during sleep.

Spongia and *hepar sulphur*.—These may be given in alternation where there is difficulty in breathing, soreness of the throat, wheezing, dry hollow cough day and night, but more particularly at night.

These same remedies may be used for chronic bronchitis.

Administration of remedies.

When given in a solution, dissolve twelve (12) globules of the selected remedy in twelve (12) teaspoonfuls of water. Dose, one (1) teaspoonful every two or three hours according to the severity of the symptoms. When given dry, three (3) to six (6) pills at a dose.

In chronic bronchitis a dose night and morning will be sufficient.

Accessory treatment.

The patient must be strictly kept in bed, the atmosphere kept at 60 to 70 degrees and moist. The inhalation of the different medicines with warm water, in the form of spray, affords increased relief.

Diet.

Milk, arrowroot, gruel, linseed tea, tea with lemon, barley water with lemon and white wine whey, if the patient be weak.

PLEURISY.

This is an inflammation of the pleura, a painful disease of very frequent occurrence, though rarely fatal, except when complicated with other diseases. At its commencement, the blood-vessels immediately under the inflamed portion of the pleura become distended with blood, and form a kind of net-work of a bright red color. The natural secretion from the affected part is at first supposed to be considerably diminished; but an overflow of thin serous liquid soon takes place, and, if the inflammation increase, the fibrinous part of the blood which, in a state of health, nourishes and sustains the pleura, is also thrown out, and forms in solid films or layers upon its surface, or is mingled with the effused liquid which has accumulated in the side of the chest affected. This excessive secretion sometimes continues until the side in which the inflammation is seated becomes completely filled with liquid, and the lung is in consequence so compressed that it ceases to perform its function. The inflammation, however,

may attack both sides of the pleura, (double pleurisy ;) but this is comparatively a rare occurrence.

Pleurisy commences with a slight degree of chilliness, sometimes with severe rigors or shivering. The patient, either at the same time, or shortly after, complains of an acute cutting pain (*stitch*) below the nipple, or towards the anterior edge of the arm-pit, which occasionally catches or interrupts the breathing. The ordinary series of feverish symptoms soon follow, viz., hot, dry and harsh skin, thirst, high colored urine, and a firm hard pulse. Yet cases frequently occur where it is small, soft, sometimes unequal or intermittent, and closely resembling that which results from great debility ; while the patient is at the same time laboring under much oppression and tightness at chest, accompanied by distressing anxiety. Now, if this oppressed state of the system were mistaken for real debility, and stimulants administered, all the symptoms would be aggravated, and serious consequences might accrue. But these symptoms, instead of being the result of direct debility, indicate the violence of the inflammation ; the acute pain prevents the patient from breathing freely, and the constantly impeded respiration causes obstruction in the lungs ; part of the blood, therefore only reaches the heart, and, consequently, the quantity in general circulation is greatly diminished. Every time the patient coughs, or attempts to draw in a full breath the pulse becomes suddenly full and hard. We have deemed it necessary to notice particularly this modification of the pulse, because it might mislead those who have not received a medical education, and cause them to neglect the necessary means to control this painful disease.

Ægophony. If the lung be completely compressed, so that no air can enter even the bronchial tubes, then no sounds of any kind will be heard ; but on the healthy side the respiration will be more distinct than natural, will be puerile. There will also be dullness on percussion all over the affected side, if the pleura be full of fluid ; if it be only partially filled, we can judge of the quantity by placing the patient in differ-

ent attitudes ; for since the fluid will gravitate to the most dependent part of the cavity, so it will carry the dull sound with it. We shall also be able to judge of the amount of the effusion by the feeling of suffocation which the patient suffers ; since this will, of course, be most urgent when the lung is most compressed. At the same time, also, the sufferer is unable any longer to lie on the sound side ; clearly because the movements of the healthy lung would be impeded by the superincumbent weight of the dropsical pleura. The pain, moreover, no longer prevents his lying on the diseased side. If we measure the two sides of the chest, the side containing the effusion will be found the largest ; we must remember, however, that in many persons the right half of the chest is naturally rather larger than the left.

After a time the symptoms begin to decrease, and absorption of the effused fluid commences ; supposing the lung to be bound down by adhesions, it will not expand in proportion to the absorption of the fluids ; the affected side will then shrink inwards, and, instead of any longer remaining larger than the sound side will become smaller.

Treatment.

Pleurisy is sometimes checked, when met by vigorous treatment, at the commencement ; but in the great majority of cases, even if the feverish symptoms, though relieved for a time soon return. We then know that the inflammation is advancing, and, in spite of the most active treatment, it goes on from five to nine days. But though we cannot prevent inflammation, when once confirmed, from running a certain course, we, nevertheless, have it greatly in our power to moderate the symptoms until the disease come to a crisis, and then, in ordinary cases no further remedial means are required. There is still, it is true, an accumulation of fluid in the chest, but the process of absorption, by which this is carried off, may be safely left to nature, if the patient have sufficient self-command to live very sparingly ; yet, though nothing is more efficacious than the control of hunger at this

stage of the disorder, few persons are able to resist the keen appetite which accompanies convalescence ; and intemperance in diet is almost sure to retard the absorption of the fluid, or induce a relapse. The desire for food is sometimes so urgent, that in order to blunt the appetite, we are under the necessity of giving the tartar emetic mixture in small doses, to keep the stomach slightly under its influence.

Hammock says :—"The same general rules may be observed in the treatment of pleurisy that are laid down for the treatment of *pneumonia*. One indication, however, in the treatment of pleurisy is, to produce if possible free perspiration. This can often be done by the use of tincture of Virginia snakeroot in teaspoonful doses every half hour in one or two ounces of pleurisy root tea. In connection with this the patient may take a large dose of Dover's powders, say fifteen (15) grains ; this will to a very great extent ease the pain while it will most likely produce perspiration. Scarification and cupping to the amount of three or four ounces of blood from the painful side will often give temporary relief, so, also, will fomentations of hops, tansy or other bitter herbs. The bowels may be kept open by the use of the cathartic pill, U. S. D. The diet should consist of gruel, or boiled milk, or milk and water ; the drinks cold—nothing so good as ice water. The belladonna ointment smeared over the painful part is good palliative treatment. If the patient is in a condition that he can take a spirit vapor bath it will forward our views in producing perspiration. The patient should not, under any circumstances, be subjected to the "antiphlogistic regimen," his system should not by any means be lowered ; if it is, and then effusion should take place, his chances for life are greatly lessened, if indeed his case is not entirely hopeless.

If the above means prove insufficient and effusion takes place, we must then endeavour to promote absorption. A succession of blisters must be applied to the diseased side, while purgatives and diuretics are to be given. The citratized magnesia will answer for the purgative, and sweet spirits

of nitre, in teaspoonful doses, in one (1) or two (2) ounces of pleurisy root tea every two, three or four hours, or a tea made of watermelon seed will sometimes answer. The iodide of potassium, in from two (2) to four (4) grain doses three times a day must be taken. It can be taken in two (2) or three (3) teaspoonfuls of pleurisy root tea. If the iodide of potassium does not agree with the stomach, syrup of iodide of iron may be given in doses of from twenty (20) to thirty (30) drops three times a day. The use of mercury should not be resorted to in this stage of the disease. The diet must be light and nutritious.

If the absorption of the fluid secreted into the chest go on very slowly, it will be advisable to apply blisters repeatedly over the affected side, or the tartar emetic ointment may be used, so as to keep up constantly a copious eruption of pustules, until the cure is completed. Internally, the subjoined pills, or mixture may be given to assist in removal of the fluid.

Tincture of aloes,	.	.	.	from 1 to 2 drachms.
Tincture of foxglove (<i>digitalis</i>),	.	.	.	20 drops.
Tincture of squills,	.	.	.	20 drops.

Mix with a little water. To be given an hour before breakfast, every second or third morning, according to the effect which it produces.

The *iodide* or *hydriodate of potash* is at present much used for the purpose of promoting absorption, and may be given as follows:

Iodide of potash,	.	.	.	.	32 grains.
Water,	.	.	.	.	8 ounces.
Mix.	A tablespoonful taken at a dose four times a day.				

By taking the simple precaution of eating a bit of bread or biscuit after each dose of this mixture, the irritation of stomach and nervous symptoms commonly ascribed to iodine are prevented.

According to Dr. Clifford Allbutt, there are two other methods to be resorted to, before the tapping of the chest should be tried. One is called the "thirst cure," the other the jaborandi cure. In the former the patient is kept without liquids in his diet, which should consist of lean meat, stale bread and the like. All fluids are forbidden except half a pint on the third day, and a pint on the seventh and eighth days. The effusion is said under this means to decrease daily.

The method however is more painful than tapping, and could not be borne by all patients without injury. The second plan is by the promotion of profuse sweating by jaborandi. One (1) drachm of the liquid extract is given every three hours. The operation of removing fluid from the chest by tapping, seems to have been practised in early times, but has scarcely become familiar till within the last quarter of a century.

Homœopathic treatment.

Aconite and *bryonia*.—Are the two principal remedies for this disease, and in the majority of cases will be all that is necessary to effect a cure. The aconite is especially indicated by the following symptoms: hot skin, high fever, quick and full pulse, and great thirst. *Bryonia* especially when the following symptoms are present: cheeks flushed and hot, dry or moist, the breathing short and rapid, pulse full and quick, stinging, shooting, or burning pains in the side, which are aggravated by breathing, coughing, and movement; breathing short, anxious and difficult, sense of tightness and oppression at the chest, painful cough, either moist or dry, great heat of skin, alternating with frequent coldness or shivering, pain worse on pressure.

Mercurious.—This remedy may be given after the fever has been subdued with other remedies, but there still remain night sweats, and more or less difficulty and shortness of breath.

Tartar emetic.—Face flushed, hot and dry, or full and anxious, and covered with sweat. Pulse quick and weak, or

full; breathing short and difficult, and attended with stinging, or shooting pain, cough with expectoration of mucus, sometimes tinged with blood, violent beating of the heart, debility and weakness, sense of suffocation.

Phosphorus.—Countenance pale, or sometimes red, eyes hollow and surrounded by a black circle, expectoration bloody; sharp shooting pains in the chest, mostly on the left side, breathing, rapid and difficult, sharp pain on pressing between the ribs, palpitation of the heart.

Arnica.—Should be given when the disease is caused by blows or falls upon the chest. If the patient is sleepless and restless at night, give coffee and belladonna in alternation (turn about) every hour.

Arsenicum.—If there is a collection of water in the chest, and great weakness.

Administration of remedies.

Of the chosen remedy, dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and give a teaspoonful every hour, or every two hours, according to the severity of the symptoms, unless other directions are given with the remedies. The diet should be the same as in pneumonia.

FALSE PLEURISY (STITCH IN THE SIDE).

This resembles the real pleurisy very much, yet is different in origin and location. It is a rheumatic affection of the muscles of the chest, and usually it is between the ribs. The pain is increased by drawing in a deep breath, by raising the arm above the head, or by walking. It is sometimes caused by exposure to cold, and sometimes by violent exercise.

Treatment.

Warm applications, as mustard poultices, or hot water will generally relieve. Sometimes the aconite liniment, or aconite tincture will be required.

The following may be used :

Oil of sassafras, and oil of hemlock, each, one and a half

(1½) ounces ; oil of origanum and laudanum, each, one (1) ounce. Mix, and rub on the affected part.

Homœopathic treatment.

If there is any fever, give one (1) or two doses of aconite every hour, or half hour.

Arnica.—May be given, a dose every two hours, either alone or in alternation with *apis mellifica*.

Pulsatilla.—If the patient is not relieved after giving the above mentioned remedies.

Nux vomica.—Stitch in the side, with painful sensation on the outside of the chest on pressing between the ribs ; worse on drawing in the breath, or by any movement. If, at any time the patient becomes feverish, with pain in the limbs and side, and head, give *bryonia* and *rhus tox*.

Administration of remedies.

Give a dose (six (6) globules) every half hour or two hours, or a solution of twelve (12) globules in twelve (12) teaspoonfuls of water. Frequently a mustard poultice or a bag of heated salt applied to the affected part will readily relieve.

INFLAMMATION OF THE LUNGS (*Pneumonia*.)

Inflammation of the lungs like all other inflammatory diseases, is generally ushered in by the usual symptoms of fever. The patient is first attacked with a fit of shivering, which is soon followed by hot skin, flushed face, quick pulse, and the characteristic symptoms of the disease, namely, pain, more or less severe in some part of the chest, quickened and oppressed breathing, with cough and reddish-colored expectoration. When the substance of the lungs only is inflamed, the pain is dull and heavy, or there is a sensation of heat and weight in the chest, without pain ; but in the great majority of cases the pleura, or membrane which envelopes the lungs, is also affected, and then a fixed pain, more or less severe, is experienced at a particular part of the chest, which is in-

creased by coughing or attempting to take in a full breath. Difficulty of breathing is a constant symptom, and is more or less urgent according to the extent or intensity of the inflammation. The respirations in a healthy person vary in number from sixteen to twenty in a minute, but in this disease they are increased to thirty, or even to forty, within the same time. When both sides of the chest are affected and the inflammation is severe, the anxiety, oppression of the chest, and difficulty of breathing, are exceedingly distressing, and the patient feels as if he were about to be stifled ; but in ordinary cases only one lung is affected, and the symptoms are then less urgent. The patient finds the difficulty of breathing increased by lying on the sound side, and therefore remains on the side affected, or on the back, with the shoulders well elevated ; the latter is the attitude generally preferred under all circumstances. The expectoration is at first scanty, and composed of a little thin frothy mucus, but in the course of a day or two becomes more copious, exceedingly viscid, and assumes a yellow, reddish, or rusty color, according to the quantity of blood with which it is mixed. The more severe the inflammation is, the more coherent and high-colored is the expectoration, which becomes, when the disease is at its height, so remarkably tenacious, that it adheres to the sides of the vessel even when inverted and shaken in that position. The pulse, in most cases, is quick and sharp, sometimes hard ; there is a particularly hot, dry, or parched feeling of the whole surface of the body, the urine is scanty, and very high-colored, and with these are conjoined the other symptoms of fever, namely, thirst, loss of appetite, furred tongue, headache, pain in the loins and extremities, and weakness. Sometimes the brain becomes affected in the course of the disease, causing delirium ; or the stomach, giving rise to nausea, and, perhaps, vomiting.

Treatment.

It must be remembered, that when the inflammation is confirmed, the disease will run its course in spite of the most

active treatment. Our remedies are therefore to be directed not to remove the disease at once, but to control, and conduct it to a safe termination.

Dr. T. Henry Green says: "It is a question of the intensity of the disease on the one hand, and the resisting power of the individual on the other." Such considerations as these not only indicate the importance of doing all that is possible to husband and support the strength of the patient, but also of not interfering too actively with the disease, unless circumstances arise which, if uninfluenced by treatment would tend to rapidly prove fatal. The patient should be kept in bed. The room large, dark and airy, and the temperature 60° or 62° Fahr. A plentiful supply of fresh air is most important. The diet should be nutritious and easily digestible, consisting of milk, milk with the white of egg, beef tea, meat essence and such articles given in quantity and at intervals, according to the condition of the patient. To promote appetite, keep the mouth cleaned with glycerine and lemon juice. Some acid and bitter as hydrochloric acid and orange peel may be prescribed for the purpose of stimulating the appetite and promoting digestion. If early in the disease, there is great constipation, loaded tongue, nausea and other gastric symptoms, the administration of a small dose of calomel, or of blue pill and colocynth is followed by morbid improvement, both in the power to take food and in the general condition of the patient. The use of purgatives requires great care. It is important, except in the case above noted to procure all necessary evacuations by the use of a small dose of castor oil, or of colocynth and hyosciamus, or by a simple injection. Every thing should be done to husband the strength of the patient, and the services of an efficient nurse will do much toward the attainment of this object. Perfect rest must be enjoined, and all unnecessary speaking be forbidden. The pain in the side and the cough often tend greatly to hinder rest. The former of these may be relieved by the application of hot linseed poultice. (I will give below the best plan for making and applying this poul-

tice). These must be frequently changed, and great care must be exercised in their renewal not to disturb or inconvenience the patient. If these means do not succeed, from one eighth ($\frac{1}{8}$) to one sixth ($\frac{1}{6}$) grain of acetate of morphia may be administered hypodermically; or a small blister or three or four leeches may be applied to the seat of the pain, the hot applications then renewed. Unless the cough greatly interferes with the patient, it is better not to interfere with it. If necessary the following may be given:

Solution of hydrochlorate of morphine, . 2 to 4 minims.

Wine of ipecac, 2 " 4 "

By means of this, and keeping the room quiet and dark, the patient will procure a sufficient quantity of sleep. This may frequently be promoted by sponging the body with tepid water, a little at a time, the last thing at night. Should it be necessary some narcotic may also be administered, but with great caution, so as not to interfere with expectoration, and it should only be made use of when other means have failed. Hyosciamus and bromide of potassium may be safely used for this purpose, and should those fail, opium may also be given.

This should be prescribed in doses to ensure sleep, and is perhaps best administered hypodermically, as acetate of morphia. The chief source of danger as already stated is failure of cardiac power, and all such symptoms should be carefully watched for. Suffocation, unless it involves both lungs is less to be dreaded than this fatal debility.

Alcohol will be the first thing indicated in the judgment of the large majority of physicians. While I do not believe that alcoholics are at any time indicated. I will give here the usual authorized treatment. It may be generally stated that a pulse of 120 or 130 calls for the use of stimulants. Brandy appears to answer best. The amount administered must depend upon its effects, and although in most cases from four (4) to eight (8) ounces in the twenty-four hours will be suffi-

cient, if the asthenia persist it must be given in very much larger quantities.

Bark and camphor have also been employed as stimulants, and in some cases they are entirely successful without the alcohol. In the treatment of failure of cardiac power it is necessary to modify those conditions upon which the failure depends. Aconite, tartar emetic and veratrum all have the effect of diminishing the temperature and pulse, but weaken the heart's action as well, and therefore are contra indicated in pneumonia.

Digitalis is less objectionable but the large doses required are somewhat dangerous.

The two remedies which appear to be of the most value are quinine and the external applications of cold. Quinine has been used more largely in Germany than in this country. It must be given in large doses—thirty (30) grains or more. Administer it early in the evening, and repeat in twenty-four hours. Give at the same time a full dose of alcohol (brandy an ounce to an ounce and a half). A much more efficient agent than quinine is the external application of cold. This mode of treatment also has been more largely employed abroad, than here; and here it is considered justifiable only when the temperature ranges very high. (106° to 107° Fahr. The following is the method of procedure recommended by Prof. Inergensen. When the temperature reaches 108° the patient should be placed in a bath at a temperature 60° Fahr. and be kept there from seven to twenty-five minutes. The pulse must be carefully watched and stimulants given, both before, during and after the bath. If necessarily the temperature of the water must be gradually reduced to 40° Fahr. The cooling process usually continues for about a quarter of an hour after the removal from the bath. The bath must be repeated when the temperature again rises to 104° Fahr. Inergensen recommends this treatment, before the symptoms of failure of cardiac action, with the object of preventing the injury to the heart caused by the fever. When debility is already marked, and the heart's action already much en-

feebled, great care is necessary in the use of the cold application, owing to the shock to the system and the increased work required of the heart.

Under these circumstances the propriety of employing it is probably doubtful.

Cold can also be employed by the wet sheet pack and by bags of ice applied to the spine. But these modes of treatment cause more discomfort to the patient than the cold bath and are not effectual. The effect of the bath being to reduce the pulse and temperature, and cause quiet sleep. When suffocation is felt in both lungs, it also is a grave symptom. As it is caused by the consolidation of the lungs in part and in part by the fever, it is only partially relieved by allaying the fever, but the old method of relieving suffocation by bleeding is so fatal to the diminished heart's action, that it is doubtful whether it is ever advisable to have recourse to it. Never, unless the suffocation threatens life, and the strength of the patient is very little unimpaired. When delirium takes place, it may be considered a grave symptom. The patient should never be left alone for one moment, but be under the charge of an experienced watchful nurse.

Sponging the body with cold water, ice applied to the head, will often quiet the patient. An opiate should only be given as a last resort, when the delirium is accompanied by great debility. The best is morphine administered hypodermically or by the mouth with ammonia or brandy, in one full dose, enough to procure sleep. The accomplishment of bronchial catarrh often requires small doses of ipecac, ammonia or bromide of potash. Diarrhœa, and derangement of the stomach should be met by careful dieting, bismuth, or teaspoonful doses once in three hours of the following, successfully used by Dr. A. H. Tagert, in gastric affections:

Tinct. of opium,	. . . . .	½ drachm.
Spirits of turpentine,	. . . . .	I “
Sub-nitrate of bismuth,	. . . . .	I “
Gum acacia,	. . . . .	2 drachms.

White sugar,	2 drachms.
Peppermint water, ;	2 ounces.

Usually in pneumonia the administration of an injection of ten (10) or fifteen (15) drops of landanum in a tablespoonful of water will generally check the diarrhœa.

During the first days of convalescence the utmost care is required to guard the patient against the debility that is apt to supervene. Stimulants are required for some days after the temperature has attained the normal standard. Convalescence in most cases is quickly established.

Solid food is soon required, and can be allowed. Tonics such as quinine, cod-liver oil, iron, and change of air are useful in restoring health.

In reference to the preparations of a poultice, prepare a flannel bag, in size, say twelve inches by eight inches, with one side longer than the other, so that it may fold over the open end like an envelope, thus a valuable means of applying moist heat is furnished. Linseed meal being prepared in the ordinary way with boiling water, to this may be added, if it is desirable to use a counter irritant, ground mustard from $\frac{1}{4}$ to equal parts of mustard and linseed meal. A small quantity of mustard gives a continued pleasant feeling of warmth that is not obtained without it. The desired quantity of this mass is next introduced into the bag, the flap being then fastened with a few stitches. One or two folds of flannel may be laid between this and the skin; and tapes may be fastened to the four corners to keep it in place. The advantages of this form of poultice are that it may be applied boiling hot without burning the skin, it does not need frequent renewal, it is cleanly, and it is very efficient, especially for the relief of spasmodic pain or abdominal cramps, or in inflammation of the thoracic or abdominal viscera. It is not intended to supersede the ordinary form where the poultice is intended to act directly on the surface, as in the wounds, ulcers and abscesses, but its usefulness is more apparent in medical cases.

In this connection, I think it is best to speak of the importance of wearing flannel or woolen next to the skin.

Flannel for wear next to the skin only came into general use in this country about the beginning of the century, and is said to have been first worn here by the soldiers of Lord Percy's regiment, which encamped on Boston common in October, 1774. There was scarcely flannel enough in the town to clothe the regiment. The wearing of it was subsequently strongly advocated by Count Rumford. The duke of Wellington insisted on it.

In this connection I would strongly advise the wearing of woolen stockings that the feet may be kept warm and comfortable, genuine yarn stockings, such as our mothers knit, and which, but for our solicitude for the health of our little ones, might become obsolete. If they are so much better for children, why not for older ones? Soft woolen undergarments are considered very beneficial and absolutely essential for persons in delicate health, and why should not the feet, so far removed from the central, vital organs, need the extra warmth as well? All know that nothing is more injurious to health than cold extremities, yet many persons go all winter with feet in a sort of torpid condition, because, as they insist upon it, they "can't wear woolen stockings." I fear that pride and a desire to wear shoes as small as possible is one cause of this feeling. Of course, no one will acknowledge this. No more than any woman will confess to wearing clothes too tight for the most perfect respiration, when not one in a thousand can raise her ribs sufficiently to inhale all the air her lungs will contain.

Many persons say: "I cannot wear woolen stockings, because my feet perspire so much in them." Now, there is always more or less moisture to the feet, especially if they are kept warm, and if encased in high, tight, leather boots; as they usually are in winter, that moisture has no chance to evaporate. There is a remedy for this. Once during the day, take off the shoes or boots and thoroughly heat and dry the feet by the fire, warming the shoes at the same time.

You will have no more cold feet that day. It is a mistaken idea with many that the best way to warm the feet is with the shoes on. No evaporation of the moisture takes place, and as soon as the shoes cool the feet are cold again. One says : "Oh, I haven't time to sit down and toast my feet !" You may find time to die, and that before you are willing to go.

Another complains of chilblains. It is generally supposed that chilblains are caused by a severe chilling or freezing of the feet, but I have doubts of that theory. Some children are much more subject to them than others. But whatever be the cause, the remedy—keeping the feet in a half-frozen state—is certainly worse than the disease.

Many complain of the unpleasant sensations produced by wool next the feet, but these sensations will wear away in a few days if the stockings are kept on, especially if the yarn is made from soft merino wool, as it should be. Persons whose flesh is very sensitive should be sure of fine wool, the fineness of the thread being immaterial. One great objection to woollen stockings with many is the difficulty in obtaining good ones. The machine-knit are sometimes good, but judging from my own unfortunate experience, more frequently poor. The yarn used in them is light and slightly twisted that as soon as the "fuzz" wears off they are as thin as a strainer. The ribbing at the top is a sham and a fraud, being only the appearance of ribbing on the right side, made by dropping stitches.

Few woman have time to knit for a family. If you can find some one who has a machine, hire them knitted, with the stipulation that they shall be knit close and no ribbing. Then they will wear like hand-knit hose.

Were these precautions faithfully observed lung troubles would be far less frequent ; particularly would pneumonia, and likewise pleuritis ; number of their victims, in numbers surprisingly less.

In case a cough remains after the acute disease is checked, use the following :

For making the best cough syrup, take one (1) ounce,

each, of thoroughwort, slippery elm, flaxseed, gum arabic, and stick liquorice. Simmer together in one (1) quart of water until the strength is entirely extracted. Strain carefully; add one (1) pint best molasses and half ($\frac{1}{2}$) a pound of loaf sugar, simmer all well together, and when cold bottle tightly. Dose: a tablespoonful from three to six times a day, according to the urgency of the case. I have tested this syrup in my own case; it is safe and the best remedy I have ever used.

Homœopathic treatment.

Aconite should be given at the commencement, either alone, or in alternation with *bryonia*, especially when the fever is high, and the pain in the chest is severe. The pain is rendered worse by movement, or coughing, the expectoration is bloody, and of the color of brick dust, tongue coated, great thirst. These remedies should be given in alternation, (turn about) every half hour, or hour, a teaspoonful, until the patient is better. *Belladonna* may be given, either alone, or in alternation with *aconite*, if the fever still increases, and there is considerable congestion of the head, with violent beating of the arteries of the neck and temples.

Phosphorus.—This is a valuable remedy in severe cases; may precede *bryonia* and *belladonna*, either alone or alternation with *aconite*, and especially, if the following symptoms are present: A short, hacking cough, especially in the evening, with a sense of suffocation, little, or no expectoration; severe pain in the chest; heaviness, fullness, and tightness, as though a band were drawn around the chest, great prostration, fullness of the face; stitches in the side, especially in the left, picking at the bed clothes; pulse small and quick. Tartar emetic may be given in alternation with *phosphorus*, especially when *aconite* and *bryonia* do not relieve; also when there is great repression of breathing and cough; the cough is loose with profuse expectoration, hollow and rattling; little or no pain; nausea and vomiting, especially after coughing.

Pulsatilla.—Difficulty of breathing, especially lying upon the back. Particularly good for children when there is regular, short coughing, hoarseness, and heaviness of the chest.

Mercurius.—When aconite has diminished the fever, but there is still difficulty of breathing, and the patient is exhausted by night sweats.

In typhoid pneumonia, china may be used, especially when the patient is much reduced by loss of blood, and when the following symptoms are present : Pressure in the chest, stitches in the breast and sides ; palpitation of the heart when breathing and coughing ; great weakness, pulse thin and quick. If this does not relieve after having used several hours, rhus tox. may be given in alternation with it.

Opium.—When there is great drowsiness, with snoring breathing, low muttering, picking at the bed clothes, and discharges passing without the knowledge of the patient.

Hyosciamus.—When the cough is very irritating and spasmodic, face red and hot ; eyes sparkling ; tongue dry and brownish.

Veratrum.—If the pulse is very small and weak, the limbs cold, delirium, vomiting, diarrhœa, and rapid sinking of strength.

Arnica.—May be given for the same symptoms as opium, but when there is no delirium. Camphor and coffea in alternate doses if the patient is sinking rapidly, with cold limbs and delirium ; and particularly if he is covered with cold perspiration.

CONSUMPTION (*Tuberculosis—pneumonia*).

Consumption is a disease which doubtless presents more difficulties, even to the greatest minds and most advanced thinkers of the day, than any other within the range of science. From 460 to 377 years before Christ, Hippocrates lived and flourished. His medical opinions relative to consumption governed the world until 1614, without any material change. And even to this day are held by a large number of physicians and to some extent govern the public mind. Dr.

Carl Booth, in an excellent series of articles upon this subject, gives the following synopsis of Hippocrates distinction between the different kinds of consumption. The first, what is now known under the name of *chronic pneumonia*; the second was caused by mucus dropping down from the head into the lungs; the third by venous bleeding; the fourth by a collection of blood, pus and mucus, in the pleural cavity; and the fifth and last were abscesses of the lungs. From this it would appear that Hippocrates had about as good a general knowledge of this subject as most men of the present day. Nor will the comparison suffer materially, if we consider the common sense treatment, which he employed for the different kinds of consumption enumerated, in fact, from a common sense stand point, it will frequently be found to have been superior. Through the whole history of this baffling malady we find that when ever anatomy has been encouraged, and progress made in this direction, the knowledge of consumption has advanced; but when anatomy has been discouraged and suppressed, and experience, speculations, sophisms and mysticisms have taken its place, such knowledge could make no advancement, but on the contrary, much of that previously gained, was lost. Galenus, a pupil of the Alexandria school seems to have known less about consumption than Hippocrates. He speaks of ulcerated lungs, and of taking his patients to a dry atmosphere to dry up the ulcers. Hence physicians who recommend a change of climate as a cure, are only following in the footsteps of Galenus who lived 1700 years ago, and of a practice which is 2000 years old. Thus does history repeat itself. The opinions and practices of one generation are discarded only to be revived again as something new, after having been forgotten for centuries. For 1400 years after this date anatomy was forbidden, on penalty of death. In the 16th century Silvius was the first author of this period, who advised and advanced the ideas of Hippocrates and Galenus. He called the hard bunches which he found in the lungs of consumptives, tubercles; and distinguished between large and small ones. He

is the first who speaks of the softening of these hard tubercles, thereby forming cavities and destroying the lungs. He also speaks of consumption of the blood which he calls one kind of consumption. The second kind, he thought, was originated by bad nutrition, causing tubercles. The third kind he demonstrated as degenerated glands, and through this theory he originated the idea of the relation between scrofula and consumption, a distinction which afterwards caused much confusion and many errors.

In 1850 Reinhardt succeeded in maintaining the position that the old opinion of Hippocrates was the correct one, and established the theory that all forms of consumption were only a chronic pneumonia with different appearances.

Anatomy had made manifest the errors of the old systems, but had failed to substitute anything better, and, as a consequence the very best physicians stood almost helpless, not knowing what to do with their patients; such was the chaos in connection with facts, opinions and nonsense existing when Virchow appeared upon the stage, bringing order out of confusion, sweeping out this Augian stable and revolutionizing the whole practice of medicine. In fact disease itself, as an entity has vanished, and is now known only as a machine out of order. What at one time required an elaborate explanation in words, the meaning of which was very frequently not well understood by those who used them, is now demonstrated upon the black board with chalk or pencil. This was not possible previously to the discovery and application of the cellular principle, and is not even now practicable to a very great extent; and, although Virchow has given a solid basis to medicine, rescued it from speculative charlatanism, and he rated it to the position and dignity of an absolute and positive science; he could not completely exhaust a single subject without losing himself too much in details; and as it requires an exact and difficult study to bring the principles and laws which he has developed, into actual practice, considerable time will yet doubtless elapse before the fruits of his labors are openly acknowledged and appreciated.

Having given, in brief, the historic and general view of consumption, we pause to take note of the varied treatment employed for its amelioration and cure. The treatment of all the old physicians was similar to that of ulcers in other parts of the body, viz : by drying up the ulcers by inhalations of tar, myrrh, etc.; to allay the cough by the use of narcotic herbs ; and at last by sending their patients to dry places.

During the mystical period, the monks were the principal possessors of knowledge, and an ordinary physician probably knew less than a good modern nurse. The monks, however, were in possession of secret remedies, and proprietors of the philosopher's stone, etc., of their times.

About 1520 Paracelsus appeared upon the stage of medical history, and was successful in demolishing many of the old ideas and doctrines, and of introducing opium in combination with minerals—especially antimony and mercury—into practice. His success in the healing art, which was mostly performed in the open market place, roused the jealousy of his contemporaries to a high degree, who pronounced him a quack and an imposter, though very soon imitating whatever they could learn from him. The executioners of those times were also very famous on account of the secret remedies they were supposed to possess, some of which were arsenic antimony, the blood of persons who had been executed, etc.

At one time the white excrement of dogs, containing lime was a remarkable and most famous remedy, among high and low, rich and poor ; and even within a few years the writer has seen peasants use it. The fat of dogs, cats (especially wild ones), foxes and of other animals, has had many advocates and admirers.

Snake oil, spiders, snails, and different kinds of bugs, have been freely used, but for most part without the knowledge of the patient ; the remedies being given or between pieces of bread. External manipulations have been more or less prominent among the remedies employed. Plasters setons and ointments were in vogue. Artificial ulcers were made upon the arm to relieve the lungs.

Mineral springs were resorted to during all the past, as at the present time. It is, however, next to impossible to define which or what remedies were mostly or more especially employed at any one period, the practice being not altogether unlike that of the present.

Particular remedies became fashionable in certain localities, from the fact that some particular crowned head, prince, or renowned character, had used it, or because it was believed that some particular personages had derived benefit from it. It was in this way that Peruvian Bark gained a great reputation in consumption. Louis XIV bought it as a secret remedy, for which he paid 2,000 Louis d'or (about \$ 9,680), and therefore it must be good. As long as the ulcer theory continued to predominate, it was known that consumption (the ulcers) would heal under certain circumstances, and whenever this occurred under the employment of any given remedy; this, of course was the one.

During a more recent period, when the specific principle theory of consumption was in the ascendant, it was natural that a specific remedy should be sought for. At one time mercury was everywhere the most prominent remedy, it being thought that it possessed the power of destroying the specific principle, but in the end was found to be bad. Another of the specific remedies was what was known as the emetic cure. It was thought that the specific principle of the disease (noxa) could in some way be induced to leave the lungs and be ejected through the operation of the emetic. New remedies were in constant demand to satisfy the failing patient, who, like a drowning man, was ready to catch at anything. Sulphur and sulphur baths were recommended by one; creosote, or gums and resins, by another; and chloride of ammonium, with sea bathing, or sea-salt bath, etc., by another, and so on, *ad infinitum*. The great Hahnemannian specific remedy is the pus of animals suffering from horse-glanders (Rotz-gift), in very high dilutions. Other recommended the poison of bees, and of venomous snakes, as the better antidote.

After the discovery of iodine it was thought that no remedy could be made to supersede it ; but, like all previous specifics, it failed to meet the expectations of its advocates. In the meantime the views of Lænnec become predominant, and the conviction more or less established, that the disease was absolutely incurable. This view, however, was very strongly opposed by Broussais, who, by bleeding, though he could extract the diseased blood, and by creating new, save the patient ; but his failures in practice only served to fortify the views of his opponents.

As the result of these opposing views relative to the curability of consumption, greater attention was paid to the present comfort of the patient, by seeking to relieve the more urgent symptoms, and, when practicable, by sending them to different places for change of air, diet, scenery, etc., in accordance with the wishes or caprice of the patient, or the prevalent practice of the time. At one time, it was the sea, at another, Italy, then Egypt, and then to Greenland, because consumption was not found there ; then, again, to the south of France. They were also sent to coal mines, because the workmen were very seldom troubled with consumption ; and one man started the idea that living in stables was beneficial, because persons employed in them were free from this disease. Stables having extra accommodation, were therefore built for this purpose, but continued to be used only for a very short period.

The discovery of iodine in cod-liver oil by a chemist, led to its very general use some thirty years since in Germany. It was introduced into England and very soon become almost universally used as a remedy in this country. Its high reputation was not altogether due to imagination, as may be seen from the following. The poorer classes of Europe very seldom, if ever, ate the flesh or fat of animals, being unable to procure them. Their principal diet was composed of potatoes and rape-oil ; an unwholesome vegetable oil, used principally for burning purposes. When such half-starved persons went to the dispensaries, and were treated with cod-

liver oil, it was found that they immediately began to improve, and to gain in flesh and weight; and hence the prevalent idea of its curative qualities and extensive employment; but good beefsteak, with plenty of bread and good butter would have produced similar, if not better results.

In this connection we may here mention the use of alcohol as a remedy; it being still recommended by many physicians at home and abroad. It is one of the remnants of Brown's theories of diseases (based upon Galen), and of their treatment,—that want of force should be treated by stimulants. On this subject Dr. Anstie, of London, has the following: "The question of alcohol in phthisis of adults is hotly disputed; on the one hand, many authorities maintain that it is an unmixed evil; on the other hand, the treatment possesses numerous advocates, and we even meet with records (by Flint and others) of patients almost exclusively nourished upon an alcoholic diet for prolonged periods, with apparently beneficial effect." "This subject has engaged our particular attention, and without expressing a very confident opinion, we have good grounds for believing that the following is a near approach to the truth." "There are two classes of cases in which alcohol appears to play an important part in the arrest of phthisis." "In a class of patients who have delicate skins and perspire very freely, and with whom, at the same time, oil and fatty matters habitually disagree (a not very common combination of conditions, but one which is seen in a certain number of instances), we have more than once seen remarkable effects produced by the entire abandonment of all medications and the employment of large doses of spirit—whiskey or rum; and a singular point in these cases was the tolerance of alcohol that was shown, even from the first." * * * "Our own experience has led us to believe that the question must be judged just as we have proposed that it should be judged in cases of acute disease,—experimentally." "In each case the effects of experimental doses upon the form of the pulse-wave, and on the temperature, and the elimination of alcohol by the kidneys, should

be carefully tested ; and according to what we have noted, in observing a large number of cases, we are justified in believing that when alcohol reduces temperature, and 'the dicrotions' of the pulse, and fails to pass away in notable quantity by the kidney, it always does good ; but that the slightest degree of narcotic action of alcohol is harmful.

My own opinion, however, of the action of alcohol in pulmonary consumption, and in cases that are mistaken as such, is : that nothing brings the patient more quickly and surely to the grave, especially if taken during the period of tuberculous formations ;—that by its fat accumulations it excludes minerals from the blood which are really the only hope of cure, and makes the death of the patient one of restless torture, when by other treatment he might have recovered ; or, if otherwise, come to his death like a person falling asleep, without struggling and tortuous suffocation.

We conceive that alcohol helps a consumptive person much in the same way as it helps a man failing in business, mind, or capacity. That it makes the patient feel better, in the meantime, while under the influence of the alcohol, we will not deny ; but his feeling better and being better are two very distinct things.

Phosphorous, in various forms, has, of late, been freely used, it being thought that phosphorus formed one of the predominant elements of animal life ; but results obtained have fared no better than those of other specifics. The best and most thoroughly educated physicians of the present do not employ specific medicine. They endeavor to sustain their patients by appropriate nourishment, and to relieve as much as possible the annoyance and discomfort arising from particular symptoms. For excessive coughing, expectorants, soothing balsams, antimonial preparations, narcotics etc., are employed. Sleeplessness is overcome by morphine and other hypnotics ; night-sweats by mineral acids and quinine, or other tonics ; sore throat by inhalations, etc., etc. Consumptive patients are also sent to milder climates to spend the winter months.

It is also known that sewing girls, shoemakers, clerks, etc., who are very much confined in their occupations are among the surest victims of consumption; and that athletes, ballet-dancers, gymnasts, and persons similarly engaged, die of this disease often after they relinquish their business. In mountainous regions tubercular consumption is almost unknown; but bronchitis and pneumonia take its place. Within the last fifty years, the significant fact has been noticed by physicians, that a disease of the right heart, which prevents the free flow of the blood to the lungs, is most generally complicated with tuberculosis, while the same disorder in the left heart absolutely concludes it.

In other words, the comparatively small quantity of blood in the lungs in the first instance favors tuberculosis, while the comparative fullness of the lungs in the second instance positively prevents it. Another very peculiar fact that has been observed is, that tuberculosis is developed only in the upper points of the lungs, and never at the base of the lobes; while all other affections most generally make their appearance at the base of the lobes, or where the lungs are mostly used, the upper points being comparatively free from attack in such cases. While these facts have been observed and noted, no one has been able to give satisfactory reason for them.

As to the contagiousness of consumption, opinions have varied very much; practitioners, in general, taking the affirmative side of the question. A few years since Dr. Budd, of Bristol, England, in the *London Lancet*, advanced the idea that the contagion probably consisted of minute germs (spores), originating from the sputa expectorated by consumptives, which, floating in the atmosphere, where inhaled by others, and became productive of the disease. This germ theory of disease has had many advocates, and only very recently Prof. Tyndall made a series of experiments in this direction, an account of which was published; but the conclusions arrived were not of a character to add much to the reputation he had previously gained. The fact is, that in a

great many cases, the observations which have been made, in connection with statistics, not only make the theory of contagiousness plausible, but seem to prove it; as to certainty, however, no evidence exists.

The curability of consumption, under certain circumstances, was never doubted by the old authors; and only since the establishment of the tuberculous specific principle theory has a cure been considered impossible. Those physicians who accepted the theory of the inflammatory nature of consumption, considered it curable, the others as incurable. The first class is represented by Hyppocrates, Galen, with their followers. The other class is represented principally by Morton, Bayle, Lænnec, and Louis (absolutely), Cannstadt, Clark and Lebert, with their followers.

The physicians of Germany, and the greater part of the physicians of France, now know that consumption is sometimes curable by nature, while on the other hand, there are few in England, with the exception of Bennet, and those who are influenced by him, who consider it curable under any circumstances whatever; a view which is all but universal in this country.

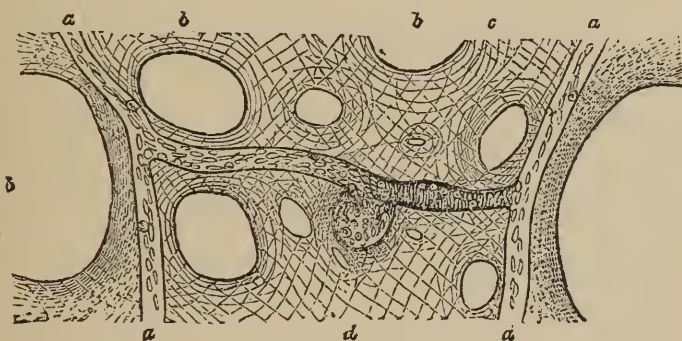
In concluding this sketch of the history of consumption, we take the liberty of presenting an extract from the preface of a treatise on consumption, by Prof. I. H. Bennet, of Edinburgh.

“For five years the author held the position of pathologist to the Royal Infirmary of Edinburg, during which period he performed and recorded the results of upwards of two thousand post-mortem examinations.” “Gradually one great fact became impressed upon his mind, viz. : that all organic diseases occasionally presented a tendency to spontaneous cure.” “He was repeatedly meeting with instances where, although death was occasioned by disease in one organ, there were others which presented traces of previously existing lesions, which in some way had healed.” “In no organs were such appearances more common than in the lungs, and of no disease was evidence of a spontaneous cure more frequent than of pulmonary phthisis.

Although it was generally considered by the profession that no remedy and no plan of treatment yet proposed could be depended on in cases of consumption, it was obvious to the author, that if the process employed by nature, could be discovered, and then imitated by art, we might ultimately arrive at the true principle of cure."

In quoting thus largely from this comprehensive paper upon consumption by so celebrated a physician, we feel that a much better idea has been given our readers, than could possibly have been done by any other plan.

Certain it is, that within the past few years much has been written, and while there is much doubt still that consumption can be cured, still many cases can be helped.



Tubercle in the lung.

Consumption is caused by the deposition of scrofulous matter in the substance of the lungs. The deposition takes place in small granules, called tubercles, which are of a dull white or yellowish color, of firm consistence, slightly transparent, varying from the size of a small pin's head to that of a garden pea or a small hazelnut, and disseminated more or less extensively through the lungs; but they are almost invariably more numerous, larger, and more fully developed towards the upper and back part than at the base. The progress of the disease therefore is usually from above downwards. In their earliest stage these little bodies are distinct from each other, but as they increase in size and number they coalesce, so as to form thick opaque masses of a yellow color

and of considerable size. These small tumors at length soften and acquire the consistence and appearance of matter (pus); they communicate with each other, and the matter finds its way into the bronchial tubes or air passages, and passes off by expectoration. Each mass or cluster of tubercles, after reaching a certain size, undergoes the same change, and the cavities necessarily produced by the evacuation of the matter, tend to run into each other in consequence of the gradual development and softening of surrounding portions. The openings formed are at first small, but the softening of tubercles forming the walls of the cavities goes on gradually, until a free communication takes place. The excavations thus produced vary in size; sometimes they are not larger than a pea, at other times they might contain half a teacupful, or even a cupful of fluid; they may be seated deeply in the substance of the lung, or may approach the surface, so as to be bounded only by the pleura, or enveloping serous membrane. The walls of the cavities constantly secrete matter, and portions of them gradually become detached. Sometimes the surrounding substance of the lungs remains sound, but in general it becomes more or less impervious to air; and before the patient dies, it is supposed that on an average three-fourths of the whole texture of the lungs are rendered incapable of carrying on the function of respiration.

In the first stage of consumption the principal symptom is cough, which at first occurs only on rising in the morning, and is little noticed, but after some time it becomes more or less troublesome during the day, particularly after going up stairs or on taking ordinary exercise, but, for a considerable length of time, is not accompanied by expectoration. At length the patient begins to expectorate a thin, whitish, semi-transparent mucus resembling saliva, and this is observed to be more copious on getting out of bed than during the day.

A sensation of constriction now begins to be felt at the chest, and is at times attended with slight difficulty of breathing. After a longer or shorter period the general health

commences to give way, a slight degree of shivering is experienced occasionally, and is followed by restlessness and heat of the skin, more especially of the palms of the hands and soles of the feet, terminating in slight perspiration. As the disease gains ground the patient becomes gradually emaciated, and is unfitted for much bodily or mental exertion. His face is sometimes flushed, at other times pale. The pulse is considerably quickened, and the face appears flushed after eating or any bodily exertion. Lassitude soon follows, and the countenance assumes a peculiar expression of languor and fatigue. The patient feels at times chilly, and cannot bear cold as formerly ; he is restless during the night and sometimes awakes with his chest or the calves of his legs bathed in perspiration ; and in many cases the hair loses its strength and falls off. At this period the tubercles are interspersed to a greater or less extent through the substance of the lungs, but are still greyish and semi-transparent.

The second stage commences with softening of the tubercles, and is manifested by a decided change in the appearance of the expectoration, which is now whitish, opaque, and does not run together in masses, but is seen in detached portions, of a round form of irregular indented edges, and floating in the thin transparent liquid secreted by the lining membrane of the air passages. During this stage, sometimes at an earlier period, spitting of blood, which is one of the most marked symptoms of the disease generally takes place. This may be slight, from a few streaks of blood to a spoonful, or it may be to the extent of a pint or more. In some instances the patient is seized with spitting of blood, while enjoying apparent health, and this may be the first symptom which he observes. Blood sometimes comes from the mouth or throat, or spitting of blood may be caused by deranged menstruation, or by local injuries,

But it rarely happens that blood comes from the lungs, unless the patient be consumptive. The cough is now greatly aggravated, and is troublesome during the night ; the pulse permanently quicker than natural, and ranges from ninety

to one hundred and twenty beats in the minute ; hectic fever becomes confirmed ; the debility and emaciation increase ; the face is pale during the day and flushed in the evening ; and pains resembling rheumatism are felt at the shoulders and chest.

In the third stage all the symptoms already enumerated increase, the rigors or chills in the evening are severe, the consequent heat of the surface of the body, thirst and restlessness, are very distressing, and the morning perspirations more profuse.

The cough occurs more frequently and is followed by breathlessness ; the voice becomes more or less hoarse or indistinct ; the slightest exertion increases the difficulty of breathing, and many patients suffer severely from pains in the chest.

The expectoration is now very copious, and assumes a yellow color, with a dirty grayish tinge and nauseous smell ; it no longer appears in round masses with indented edges, but runs together, still appearing unmixed with the chronic liquid. Frequent purging also harasses the patient, and tends greatly to increase the debility and emaciation ; the ankles begin to swell in the evening, and after some time remains permanently swollen. Some patients suffer comparatively little towards the termination of the disease ; they waste away gradually until the powers of life are completely exhausted, and death takes place without a struggle. In other cases again, the hectic fever, difficulty of breathing, and frequent cough, followed by a sense of suffocation and sinking, are severe to the last.

The duration of consumption depends greatly on the circumstances of the patient. Those who have it in their power to avoid all the causes which tend to aggravate the disease are of course more likely to linger during a longer period than those who have not. The average duration of consumption is from twelve to eighteen months.

Causes.

Pulmonary consumption is generally admitted to be referable in all causes to one common origin, viz: that debilitated state of the constitution termed the scrofulous habit. This is more particularly remarkable in the hereditary transmission of consumption in scrofulous families, and in the frequent connection which exists between consumption and various symptoms and appearances of scrofula.

The development of an external scrofulous abscess bears a strong analogy to the formation and progress of tubercles in the lungs. Both commence in the same slow insidious manner, become solidified, then soften, and present the same kind of thick curdy matter. We also observe the same general symptoms—the hectic fever, the excessive sweating, the flushing of the face, emaciation, purging, etc.,—In scrofulous inflammation of the hip and knee joint, as in confirmed consumption.

Although the tuberculous or scrofulous constitution or that state of the system which precedes consumption can generally be traced to hereditary origin, it may nevertheless arise from various causes, the principal of which are the following.

1. A cold, damp, and variable climate ; hence consumption is of more frequent occurrence in countries which have wet and cold alternating with heat, than in those which a dry atmosphere, whether cold or hot. This is illustrated by the frequency of the disease in this country and in Holland ; whereas, within the tropics and in northern parts of Russia, where the atmosphere is dry, it is comparatively rare.

2. Improper food. Diet composed of substance not sufficiently nutritious, or stimulating, or an inadequate supply of food, tends strongly to produce consumption. Hence the disease occurs most frequently amongst the poor ; and many consumptive individuals of this class of society, attribute their illness to the privations they have undergone from want of food ; and among the indigent, particularly in large towns, it is observed that women frequently become consumptive while

nursing. On the other hand, among the more affluent classes of society, there is reason to believe that the disease is often induced by using more food than the wants of the system require, more especially animal food and stimulating articles of diet.

3. Impure air. Some modern authors place this at the head of the causes of consumption, and there can be no doubt that it exercises a very pernicious influence on the animal economy. Breathing an atmosphere loaded with smoke, and polluted with numerous exhalations necessarily connected with the various processes of animal and social life, must tend greatly to increase the mortality of large towns more especially among the working classes, who reside in narrow dirty streets, lanes, confined courts, and similar localities, where the ventilation is imperfect, and the vivifying rays of the sun are excluded.

4. Excessive labor. This cause depresses the energies both of the the physical and moral system ; and whatever tends to debilitate the body tends also to induce consumption.

5. Deficient exercise must also rank among the causes of consumption.

6. Certain occupations. The sedentary occupations of literary men, tailors, shoemakers, weavers, dressmakers, etc., conjoined with want of pure air, induce that state of the constitution of which consumption is to be considered as the local manifestation. This disease also appears to be frequently brought on by certain trades, which expose the workmen to an atmosphere loaded with irritating gases, and minute particles of various substances.

Before proceeding to detail the treatment found most efficacious—we think it proper to enumerate some of the best preventives known.

A Philadelphia scientist, recently lecturing on the subject of mouth-breathing, said that many ills that are ascribed to other causes are in reality due to the effects of this habit. Nature intended the nose to be used for inhaling and exhaling the atmosphere and fitted it up for that purpose. The

mucous membrane contains what are termed serous glands, which give moisture to the air as it is inhaled, while it is warmed and purified by its passage through the nose. When taken directly through the mouth into the lungs the air is apt, by reason of its lack of moisture, impurity, or improper temperature, or all three, to act as an irritant especially in the larynx, and in the air cells of the lungs. Owing to the imperfect oxygenation of air inhaled directly by the mouth, habitually there is often set up in the system a condition that gives the symptoms of dyspepsia, consumption, etc.

Another very excellent preventive is found in frequent expansion of the lungs. Consumptives are usually narrow-chested. Asthmatics are usually broad-chested, and become so, very much from the difficulty they have in breathing when attacked with asthma. Hence asthmatic persons are seldom the victims of consumption.

Many inventions have been sought out for expanding the lungs; but the following simple means will accomplish the work as well as it can be possibly done. Go into the air, stand erect, throw back the head and shoulders, and draw the air through the nostrils into the lungs as much as possible. After having thus filled the lungs, raise your arms, still extended, and suck in the air. When you have thus forced the arms backward, with the chest open, change the progress by which you drew in your breath, till the lungs are emptied. Go through this process several times a day, and it will enlarge the chest, give the lungs better play and serve very much to ward off consumption.

If the lungs are tender, or the blood-vessels weak, due care must be used, at first, not to overstrain them.

The eminent physician, Dr. Felix L. Oswald, in the course of an article in the *Popular Science Monthly* upon "The Remedies of Nature," with an application to the cure or alleviation of consumption, lays down a generic principle broad enough, as it would seem, to be the foundation of a new system of medicine. It is to the effect that nature always tries to relieve itself, and that the sensory symp-

toms attending the process of reconstruction are in reality a plea for non-interference. Hence the best way to assist nature is to forbear from meddling with the restorative processes and to seek to remove the predisposing cause. In his own words: "There is a strong upward and healthward tendency in the constitution of every living organism."

Dr. Oswald, therefore, lays it down as certain that "in all latitudes of the temperate zone the disease known as pulmonary consumption is caused by the breathing of vitiated air, and can be subdued by outdoor exercise." He does not claim that wasted tissues can be reproduced, but he does claim that in all but its last stages the progress of the disease can be arrested by outdoor life alone, and that a three months' mountain trip with or without tents, and even attended with all possible discomforts, will cure all the symptoms of the disease. His detailed recommendations are so pertinent and practical that we make an extract from them:

"In stress of circumstances, an hour per day of active exercise will help to keep the lungs catarrh-proof, and that hour may even be subdivided. Buy a large umbrella and make it a rule to walk on your way to market, to your place of business, or to church; or at least part of the way if the distance is great and your time limited. In the evening take a large satchel and go a mile out of your way to patronize a good fruit-dealer or a vender of old books,—or fill the satchel at home and earn the blessings of a poor family in the factory suburb. Street rambles should have a proximate object; the regulation walk on general principles is too apt to be shirked on very slight pretexts. If you have a garden of your own, fence off a digging corner, and prospect for geological specimens. If you have a wood-shed, import an old stump-log (hickory preferred) and do not be too particular about keeping your ax sharp. Ventilate your office, keep a stove and an overcoat in your work-shop, and open the windows every now and then. Open the dining-room windows in the forenoon and the kitchen windows in the afternoon; no force-ventilator can compete with

the effect of a direct influx of atmospheric air. If you are engaged in a class of work in a warehouse or counting-house prevail upon the managers to ventilate the place during the dinner recess, or else try to do your work in the airiest corner, near a window or near the door of a vacant side room or hall. In ill-ventilated rooms the azote miasma has its centres of density that can be avoided with a little management."

The doctor follows up these recommendations with numerous others. He advocates airy bedrooms, outdoor exercise in winter, sight-seeing afoot, the use of fat, containing substances, and the avoidance on the other hand of all scorbutic articles of diet, such as salt meats, pickles, rancid fat, pungent spices, cheese, and intoxicating liquors, the use of gymnastic apparatus, etc. In fine, he recommends a series of atmospheric, gymnastic, and dietetic remedies, which he claims will always arrest the progress of this dreadful disease. Fresh air and active exercise are medicines easily procurable and easy to take. They are within the reach of all, and are certainly worth the trying. They can harm no one if they do no good. It adds to their enjoyment that they can be attractive and pleasant.

In all cases, the tickling in the throat is nature's mode to excite cough, says W. W. Hall in his admirable book upon "Coughs and Colds." And it is precisely so in consumption. Cough is curative. It is nature's cure, and to smother cough without removing what causes it, is to hinder nature and take away all chance of cure. When a man clearly has consumption, coughs a great deal, has been bringing up yellow matter for a long time, if his cough should subside he would inevitably die in three or four days, because the cough helps to bring that matter out of the lungs and keeps them clear; but when the cough becomes as weak or so unfrequent as not to remove the matter as fast as it is formed, the lungs begin to fill up with it, air cannot get in and life ends.

The only hope of curing consumption is to promote cough on the one hand, so as to get the lungs clear of the

matter in them, and then prevent the formation of more. But the popular sentiment is then in proportion as there is less cough, the chances of life are increased, and willingly and hopefully the patient takes what cures his cough, and is thus led a willing victim to the grave of his own digging. So much are men with all their boasted intelligence, like the silly creature, which feels itself safe, when it can hide its head in a hole, to be crushed the next instant in the jaws of its relentless pursuer.

Cough from common cold is dry, for a few days no phlegm is brought up, but within a week the cough becomes loose, a yellowish matter is expectorated and in two or three days it becomes less and less. A consumption cough also comes on with dry tickling sensation at the bottom of the neck in front ; it is a fruitless cough ; nothing comes up and in the course of an hour or two more it disappears, and is not noticed again until next morning ; thus morning after morning it comes with the certainty of the morning itself but it is known from the dry tickling cough in the first days of a cold by its continuance for weeks together ; the same tickling and fruitless cough ; and if in addition to this the pulse for weeks before breakfast time is found to be beating ninety times in a minute especially if there is a perceptible shortness of breath in going up a few steps, it is consumption begun, and in nine cases out of ten will prove fatal in two years simply because the patient cannot be made to believe that it is consumption, and hence will not use the means that in almost all cases will avert it, to wit ; out door activities and horseback riding for the greater portion of every day until the cough ceases, and the pulse has come down to its natural healthful standard of about 70 beats in a minute, not within an hour of eating and after the person has been seated quietly for about half an hour.

Treatment.

I shall notice some measures which ought to be adopted to ward off consumption where children are born with a pre-

disposition to it. If the consumptive tendency be derived from the father only, while the mother is robust and in sound health, she ought to obey the law intended by nature, and suckle her own child. But, on the other hand, if the predisposition to the disease be inherited from the mother, a healthy nurse should be procured to suckle the infants; and this measure becomes the more necessary when the health of the mother is in a delicate state, because if she were to nurse her child under such circumstances, not only would her own health suffer, but her child would be rendered sickly, and liable to be carried off during the dangerous process of teething, or by any of the various ailments of infancy. The child should be suckled from twelve to eighteen months, or until the first set of teeth appear; and, as a general rule, the only nutriment allowed during the first six months should be the nurse's milk. The qualifications of a hired nurse are of great consequence. She should be of a healthy appearance, and care should be taken to ascertain that her constitution is not tainted with scrofula; she ought not to be too young or inexperienced; her milk should be plentiful, and suited to the age of the child she is to suckle. It would be wrong, for example, to employ a woman who has been nursing her own child for six or eight months to suckle a newborn child.

Accomplishments are deemed of more importance than the maintenance or improvement of health. The consequence of this is, that the children of consumptive parents are often endowed with a superior development of the mental faculties, and great aptitude for the attainment of knowledge, their minds are often worked to the fullest extent, to the neglect of proper exercise conducive to health, in order that they may excel in educational pursuits; and thus their health is slowly and almost imperceptibly impaired, until at length it becomes irrecoverably injured, and the highly-gifted and accomplished young lady, with a mind still active, with personal beauty, and with every capacity for enjoying life, is hurried to an early grave by the terrible though silent and

insidious enemy of the most beautiful and interesting part of our race.

The question, therefore, now to be considered is—what are the measures to be adopted in order to counteract this phthysical tendency? The principal object is to invigorate the system generally, and the best means of effecting this consists in properly regulating the animal economy, and free and regular exercise in the open air. Healthy children are naturally inclined to take exercise and the out-door amusements which they make choice of are generally the best suited to invigorate and promote the development of the growth and development of the body.

The manner in which young girls are at present educated is often productive of the most injurious consequences, more particularly to the delicate, and to those in whose constitutions there exists a tendency to consumption or scrofula.

The long confinement in schoolrooms; the constrained position in which they are often kept for hours, perhaps leaning over a piano or drawing table, or in some stiff or erect posture, conjoined with circumstances connected with dress, as wearing thin shoes, etc., are followed in thousands of instances by the worst effects. The extremities become cold and the blood is preternaturally determined to the chest, where it accumulates or becomes congested, thus increasing the tendency to the formation of tubercles in the lungs of those constitutionally predisposed to consumption, or sowing the seeds of this fatal malady among others, in whom no hereditary tendency exists. It is, indeed, much to be regretted, that the physical education of girls is so much neglected; the cultivation of the mental faculties, and the acquiring of a fashionable education seem to be considered by many parents as the first and paramount consideration and, at the majority of boarding-schools, to excel in a variety of accomplishments is deemed of more importance than the maintenance or improvement of health. I repeat the question, therefore, now to be considered is what are the measures to be adopted in order to counteract this phthysical tendency? The

principal object is to invigorate the system generally, and the best means of effecting this consists in properly regulated regimen and diet rather than in the use of medicine.

The patient should rise early in the morning, breakfast and dine early, his diet should be generous without being too stimulating, he should take plenty of animal food plainly dressed, with good bread. Slops and watery diet are to be avoided. He ought to take exercise on foot, on horseback, in an open carriage, or on the top of a coach, and should be at least, four or five hours in the open air every day when the weather permits. Every necessary precaution should be taken to avoid danger from wet feet, sitting in currents of air, the long-continued influence of cold and wet, and sudden alternations of atmospheric temperature, as going out of hot rooms into the cold night air, or passing from the latter into heated rooms ; but exposure to the air at all seasons when the body is protected by suitable clothing, and proper precaution is observed, improves the general health and strength and tends strongly to fortify the system against the impression of cold, whereas confining phthisical persons in warm rooms during winter, and the adopting of other measures for the purpose of escaping the effects of a cold and variable atmosphere, have a tendency to debilitate the constitution, and instead of counteracting the unfavorable influence of climate, only render the invalid more subject to it, and thus produce the very opposite effects to those intended. Another powerful means of hardening the body so as to allow the invalid to withstand atmospheric vicissitudes and render him capable of following his usual avocations, and enjoying the rational pleasures of life, is cold bathing,

At first the tepid shower bath may be used, or simple ablu-
tion of the trunk of the body by means of a sponge or a towel dipped in water, containing a portion of salt or vinegar, (two (2) ounces of either to a pint of water,) and after the skin has been carefully dried, friction with the hair glove or a rough towel should be used. The time for using this process is immediately on getting out of bed. It is advisable

in all cases, whether the shower bath or sponging be employed, to begin with warm water, reducing the temperature gradually until it can be used quite cold. Either of these methods may be continued daily through the coldest winter, but the latter being the least troublesome, is generally preferred. Both sexes should wear flannel next the skin from the collar bones to the ankles. It ought to be worn of a thinner texture in summer than in winter, but never altogether discontinued. Many young ladies bring consumption on themselves by deficiency in clothing, and wearing silk stockings and thin shoes during winter. These habits are often persisted in, in spite of repeated warnings, and when conjoined with late hours, long continued excitement and other evils, is the means of destroying thousands of lives.

With this general plan of treatment I will include a few simple palliative measures, adding the latest advices of our best physicians. Have witnessed the good effects in many obstinate cases from the use of the following simple remedy:

Live temperately, avoid spirituous liquors, wear flannel next the skin, and take, every morning, half a pint of new milk mixed with a wineglassful of expressed juice of green hoarhound; and if you are not too far gone a cure is reasonably certain.

For spitting of blood: Take two (2) spoonfuls of the juice of nettles at night, or take three (3) spoonfuls of sage juice in a little honey. This presently stops either spitting or vomiting of blood; or twenty (20) grains of alum in water every two hours.

Dr. Bennett introduced the cod liver oil in 1841, in the treatment of consumption, and speaks of its success in glowing terms. The cod liver oil is readily digestible under circumstances when no other kind of animal food can be taken in sufficient quantity to furnish the tissues with a proper amount of fatty material.

The common dose for an adult is a common tablespoonful three times a day, which may be increased to four (4) or even six (6) to advantage.

The following are some of the forms in which cod liver oil may be taken, if it be found impalatable :

The simplest and often effectual way to disguise the taste is to sprinkle it with salt, or

Cod liver oil,	. . . . .	2 ounces.
Syrup of ginger,	. . . . .	2 ounces.
Mucilage of gum arabic,	. . . . .	2 ounces.
Oil of cloves,	. . . . .	6 drops.
Mix.		

Citrate of ammonia,	. . . . .	10 grains.
Iron,	. . . . .	10 grains.
Quinine,	. . . . .	10 grains.
Cod liver oil,	. . . . .	2 ounces.
Glycerine,	. . . . .	2 ounces.
Mix.	Tablespoonful thrice daily.	

The following will be found useful :

Syrup of wild cherry,	. . . . .	2 ounces.
Lactucarium,	. . . . .	2 ounces.

Mix. Dose, a teaspoonful or two at night, or in the morning.

Or this ;

Syrup of tolu,	. . . . .	1 ounce.
Syrup of squills,	. . . . .	$\frac{1}{2}$ ounce.
Wine of ipecac,	. . . . .	2 drachms.
Paregoric,	. . . . .	3 drachms.
Mucilage of gum arabic,	. . . . .	$\frac{1}{2}$ drachm.

Mix. Dose, a teaspoonful occasionally.

The liquor of the iodide of iron, taken in doses of from twelve (12) to (20) twenty drops in water, three times a day, may be beneficial in some cases, where there is considerable debility. For the night sweats, the following may be used ;

Infusion of peruvian or cascarilla bark,	4 ounces.
Tincture of hyosciamus,	1 drachm.
Dilute sulphuric acid,	1 “

Mix. Dose, a tablespoonful three times a day.
Or this :

Oxide of zinc,	1 drachm.
Ex. of conium,	$\frac{1}{2}$ “

Make into twenty (20) pills, and take one (1) or two (2) every night.

Washing with brandy, or whiskey and alum or quinine may be practised if the sweats are excessive. For diarrhœa, tris-nitrate of bismuth, may be given in doses of thirty (30) grains either before or after each meal. For the hectic fever the sulphate of quinine may be given to the extent of ten (10) or twelve (12) grains in the intervals. Sponging the surface of the skin with warm vinegar or spirits, has sometimes a soothing effect.

The phosphate of lime, given in doses of ten (10) grains three times a day, each dose followed by a teaspoonful of cod liver oil, is highly recommended. The tincture of muriate of iron, in doses of five (5) drops in a wineglass of water, and repeated every three or four hours, will be found useful in some cases.

The inhalation of the following will be found beneficial.

Nitric acid.	25 drops.
Camphor,	4 drachms.
Tannic acid.	4 “
Pure deoderized alcohol,	6 ounces.

Mix. A piece of sponge should be moistened with one (1) or two (2) teaspoonfuls of this mixture, and place in a tumbler, and held to the mouth and nostrils, the patient inhaling the vapor of it ten or fifteen minutes, and repeating

several times a day. Breathing the vapor of melted resin is a valuable remedy. Dr. Brookes D. Baker, government physician at Hawaii, Sandwich Islands, writes: "I have found by experience that the vomiting in phthisis can be controlled, in some thoroughly, in others partially, by the ether spray on the back of the neck, doing it just before meals." Dr. Maurice Schmidt of Frankfort (on the Main), claims to have had good results from the following form of inhalation, says the Med. and Surg. Reporter.

Balsam of Peru,	. . . . .	4 drachms.
Alcohol,	. . . . .	2 "

He places a vessel containing a pint of boiling water over a spirit lamp, and pours in it ten (10) drops of the above mixture. The patient inhales the vapor, through a funnel of paper, folded in a conical form, about a yard in length, three or four times a day, and continuing for months.

English writers agree in thinking that one of the best remedies for profuse night sweating is picrotoxin the alkaloid, of *cocculus indicus*; in doses of one six hundredth ($\frac{1}{600}$) a grain, made into small pills, one to be taken at bed time, and the other in the early morning.

Mullein Plant is said to have been from time immemorial, a popular remedy, in Ireland for the treatment of phthisis. The mullein plant boiled in milk is liked by the patients. The hot milk decoction causes a comfortable sensation, and when once patients take it they experience a physiological want, and when the supply is interrupted, complain much in consequence. That it eases phthisical cough, there can be no doubt; in fact some of the patients scarcely took their cough mixtures at all—an unmixed boon to phthisical sufferers with delicate stomachs. Its power of checking phthisical looseness of the bowels was very marked, and experiment proved that this was not merely due to the well known astringent properties of boiled milk. It also gave great relief to the hoarseness.

For phthisical night sweats it is utterly useless, but these can be completely checked by the hypodermic use of from one eightieth ($\frac{1}{80}$) to one fiftieth ($\frac{1}{50}$) of a grain of sulphate of atropia; the smaller dose if it will answer, preferable, as the larger causes dryness of the pharynx, and interferes with ocular accommodation.

In advanced cases it does not prevent loss of weight. In pretubercular and early cases of pulmonary consumption, mullein appears to have a distinct weight increasing power. In early cases the mullein milk appears to act very much in the same manner as cod liver oil, and when we consider that it is at once cheap and palatable, it is certainly worth a trial.

To Dr. Hirts, of Strasburg, is perhaps due the honor of first giving digitalis (fox glove) in pneumonia. As a tonic to the action of the heart digitalis answers well.

Frequently renewed inhalations of essence of turpentine, when they are administered at the commencement of the first period of inflammation may arrest its process.

Inhalations of carbolized spray, with the administration of ammonium chloride from five (5) to twenty (20) grains, iodide of potassium three (3) to five (5) grains, given in compound licorice mixture half an ounce, or elixir of zerba santa (mountain balm) if there is much spasmodic cough, has given decided results. Night sweats are in many cases controlled by ergot, atropia and emulsion of cod liver oil and extract of malt, if the nutrition is below par. A moderate amount of stimulant may be required; and if there are great daily fluctuations in the temperature, indicating the onset of pneumonic phthisis, the pill of digitalis, quinia and opium is used three times a day.

The knowledge of a few simple dietetic correctives would enable thousands to dispense with the use of costly medicines. Common sugar is an effective receipt for depurating the morbid secretions of the air-passages. It relieves hoarseness, and in bronchial affections alleviates the painful, dry cough, by loosening the phlegm and relaxing the stringency

of the laryngeal muscles. Various kinds of sweet fruits share this property, and the most palatable form of the specific is perhaps the saccharine element of good layer-raisins. California raisins are now retailed at ten to twenty-five cents a pound, and half a pound of a medium quality can be warranted to afford as much relief as a dollar-bottle of the best cough-syrup. Besides, the demulcents of nature induce no unpleasant after-effect, while repeated doses of medicated syrup soon become nauseating. A quart of cold water, either pure or slightly sweetened, taken just before going to bed, is a pulmonary febrifuge, and a reliable preventive of night-sweats. It also promotes the easy breathing which to far-gone consumptives comes otherwise only after hours of troubled sleep.

I have thought it advisable to add the following table to assist in determining the difference between disease which in their leading features bear a strong resemblance to each other.

ACUTE MILIARY TUBERCULOSIS, INTERMITTENT FEVER, PNEU-
MONITIS AND TYPHOID FEVER.

Dr. C. R. Crandall (*Med. and Surg. Reporter*) makes the following differential points.

ACUTE MILIARY TUBER-
CULOSIS.

1. Chills occur at irregular periods.
2. Fever remittent in character, and not influenced by treatment.
3. Pulse rapid and weak, with tendency to increase.

INTERMITTENT FEVER

1. Chills occur periodically.
2. Fever intermits and yields to treatment.
3. Pulse rapid and full during fever, and then subsides.

4. Temperature constantly elevated, with variations between 100 and 103.

5. Marked disturbance of respiration.

4. Temperature characterized by extreme changes.

5. No disturbance of respiration as a rule.

ACUTE MILIARY TUBERCULOSIS.

1. Onset gradual.

2. Chills frequent and more or less persistent.

3. Temperature runs up gradually, never extremely high, subject to remissions.

4. Irregular sweats are a common symptom.

5. Pulse rapid and weak from the first.

6. Cyanosis and lividity a prominent symptom, but most marked during the latter stage.

7. Rapid breathing a marked symptom.

8. No soreness or pain in the lung.

9. As a rule, no dullness on percussion.

10. Crepitant or coarse bronchial rales may or may not be present at first, but frequently appear during the later stages of the disease.

PNEUMONITIS.

1. Onset rapid.

2. Usually one severe chill followed by more or less chilly sensations.

3. Temperature rises very rapidly to about 104, continues high for a few days and then begins to decline.

4. Sweating is more or less frequent, and continuous in some cases.

5. Pulse rapid, but full and strong during first stages.

6. Cyanosis or flushing a common symptom early in the disease.

7. Rapid and shallow breathing a marked symptom.

8. Usually more or less pain.

9. Dullness sooner or later over a portion of one or both lungs.

10. Crepitant and subcrepitant rales; mucous and submucous rales in the larger tubes, appearing within the first 24 or 48 hours.

11. More or less cough and expectoration generally present.

11. Cough a marked symptom. Expectoration becomes abundant, sputa often discolored.

ACUTE MILIARY TUBERCULOSIS.

1. Onset gradual.
2. Frequent chills.

3. Possibly more or less headache.

4. Mental disturbance and delirium not the rule, but may occur.

5. No epistaxis.

6. Tongue usually dry and coated.

7. Bowels may or may not be normal.

8. No abdominal tenderness or tympany.

9. Temperature rises gradually, and there may be evening exacerbations and morning declines.

10. Rales are generally present sooner or later.

11. Breathing soon becomes rapid and so continues.

12. Pulse rapid and weak.

13. Generally either marked cyanosis or lividity is a common symptom.

TYPHOID FEVER.

1. Onset gradual.

2. Usually a chill followed by chilly sensations.

3. Headache generally complained of.

4. Mental disturbance and delirium a common symptom.

5. Epistaxis a common symptom,

6. Tongue dry and coated.

7. Bowels generally loose. Exceptionally, constipation may exist.

8 Abdominal tenderness and tympany.

9. Temperature rises gradually, and has generally a regular evening exacerbation and morning decline.

10 Rales are frequently present, sooner or later.

11. Breathing but slightly, if any changed, unless complication supervenes.

12. Pulse rapid and weak.

13. Cyanosis not often present.

- | | |
|--|--|
| 14. More or less profuse sweats, a common symptom. | 14. More or less sweating in about half the cases ; in the other half the skin is hot and dry. |
| 15. No eruption. | 15. Eruption may appear after seventh day. |
| 16. Subsultus tendinum may exist. | 16. Subsultus tendinum may exist. |

Homœopathic treatment.

Cod liver oil is of great benefit, as in other treatments. It may be given in doses of a tablespoonful three times a day.

Calcareo carbonica.—May be given for the following symptoms: Pale complexion with a heavy look of the countenance; cheeks puffy; appetite capricious; bowels inclined to constipation rather than diarrhœa, but sometimes very irregular; cough slight but decided; difficulty of breathing, especially on breathing or walking more rapidly than usual; complexion pasty, and muscles soft and flabby; the circulation languid; strength feeble. In a more advanced stage of the disease, lycopodium, or nitric acid will be more useful than calcarea.

Sulphur was considered by Hahnemann as one of the principal remedies in this disease. When sulphur is indicated, the following symptoms will be found present: eruptions resembling those of scrofula, will form on the skin; a disposition to take cold from sudden exposure; rheumatic pain in the limbs without swelling; unsteadiness in walking, and trembling of the hands; numbness of different parts of the body; paralysis and emaciation; pains worse at night, and relieved by external warmth; drowsiness; disturbed sleep; face pale, sickly, and flabby; blue margins around eyes; dryness of the tongue and throat, sore throat, pressure in the throat as if from lumps; acidity of the stomach; stomach painful on pressure; nausea after eating; pain in the abdomen; cutting pain and nausea followed by diarrhœa and straining; hoarseness,

or loss of voice; throat feels rough; cough dry, short and hacking.

Phosphorus.—Suitable for persons of slight form and fair complexion, for short, dry cough, shortness of breath, great emaciation, diarrhœa, perspiration.

Other remedies are ferrum, silicea, phosphoric acid, lobelia, nitric acid, iodine, belladonna, hamamelis, and china. These remedies should be taken under the direction of a competent physician.

Administration of remedies.

Of the selected remedy, take a dose, (six (6) globules) three times a day; or when the symptoms are urgent, take a dose every hour, two or three hours.

SCROFULA (*From scrofa—a sow*).

Scrofula, in the general sense of the term, consists of a morbid deposit, called tuberculous matter, which commonly appears in small tumors or knots called tubercles.

The lungs are more frequently affected with scrofula than any other internal part; in that organ it is manifested at first in the form of numerous small tubercles, which, after remaining in a latent state during a longer or shorter period, gradually increase in size, then soften and cause incurable consumption, (see consumption.)

No age confers complete immunity from scrofula, but different periods of life render some organs more liable to be affected than others. The parts of the body in which the vital functions are most active, are more particularly subject to the disease. Hence, tubercles of the brain frequently occur in infancy and seldom in grown up people, because in the former the brain is in the seat of constant and strong functional action. The glands of the neck are most frequently affected during the process of teething, probably in consequence of the continued irritation about the jaws which this occasions. External scrofula seldom originates after puberty; on the other hand, consumption, or as it may termed, scrofula of the lungs, chiefly occurs in adults, in consequence, it is presumed, of the greater activity of the lungs at this period

of life. At a more advanced age, when the digestive organs are stimulated to a greater extent and the abdomen increases in size, the liver increases in size, the liver and other organs contained within that cavity are almost exclusively the seat of the disease. Irritation of the stomach and bowels may develop scrofulous disorders of the mesenteric gland at any time of life; this variety of disease, however, is more commonly met with in children.

Scrofula appears to be so mixed up with the very elements of existence that it has the effect of modifying the symptoms of a great part of the diseases to which the body is liable. The effects of this influence are more particularly observed when syphilis, and diseases of the eye, occur in individuals of scrofulous constitution; and the unmanageable and obstinate character which many inflammatory diseases acquire when modified by a scrofulous taint in the system is well known to medical men. It is also well known that wounds and other injuries of the soft parts in scrofulous people are often very slow in healing. In many chronic diseases connected with scrofula, it is frequently found necessary to administer tonic and stimulant remedies, which, in the same diseases under other circumstances, would be inadmissible.

Causes.

Many causes are said to give rise to scrofula; in fact every agent, moral or physical, which depresses the energies of the system, tends to develop the disease. One of the most powerful of these is, without doubt, the long-continued action of a cold moist atmosphere. The injurious influence of this cause will be greatly aided by defective or unwholesome diet, want of cleanliness, sedentary habits, living in confined situations, where the atmosphere is not renewed, and the direct light of the sun is excluded.

There cannot be the slightest doubt that impure air and the absence of the direct solar rays exercise a powerful influence in inducing scrofulous affections; this is shown by their greater prevalence among the inhabitants of large

towns than among those who breathe the pure air of the country.

We see the influence exercised by climate over this disease in the aggravation of the symptoms during the spring and winter seasons, whereas in the summer months, scrofulous sores generally improve or disappear altogether. All external agents, all circumstances which reduce the energies of the system below the natural standard, (more especially when conjoined with atmospheric humidity and cold) are exciting causes of scrofula.

The children of scrofulous parents, under whatever circumstances they may be placed, are more liable to the disease than the children of healthy parents in parallel circumstances. Our limits will not allow us to notice in detail the various means recommended to prevent the development of the disease in children predisposed to it; but we may say with the celebrated philosopher Hunter, "let an infant have plenty of sleep, plenty of milk, and plenty of flannel;" these, when conjoined with plenty of pure air, are the principal objects in domestic treatment to be observed during infancy, and should be strictly attended to, from the very first hours of birth. The cold bath is improper for newly-born, or very young children; in the delicate and those in whom there is reason to suspect a disposition of scrofula it increases the debility, and may lead to very injurious consequences. The cold bath however agrees with many children; this is shown by their soon becoming warm and appearing lively after being taken out of the water, whereas in others it has an opposite effect; they continue chilly and pale for some hours afterwards, and the faculties of the body appear, as it were overpowered. But although cold bathing is generally inadmissible, washing the body with warm or tepid water is necessary, not only with respect to cleanliness, but also to promote the healthy functions of the skin. As the child grows up, constant care is required in regulating the diet; this consists principally of animal food taken at regular intervals; but never in such quantity as to overload the stomach. All

healthy children have a natural desire for exercise ; than which nothing is more conducive to the digestion of the food, the circulation of the fluids, and the health and growth of the body.

To scrofulous children, or those who have a predisposition to the disease, plenty of exercise "is indispensable, and should always be taken in the open air when the weather is fine, otherwise they should be allowed to play in a large, well aired room. A judicious writer of the last century, Dr. Cheyne, speaking of the advantage of exercise to children, says : "It is beautiful to observe the earnest desire planted by nature in the young persons to run, jump, wrestle and romp, and constantly be pursuing exercise and bodily diversions that require labor even till they are ready to drop down, especially the healthier sort of them, so that sitting or being confined seems to be the greatest punishment they can suffer ; and imprisoning them for some time will much more readily correct them than whipping. This is a wise contrivance of nature, for thereby their joints are rendered pliable and strong, their blood continues sweet and proper for a full circulation, their perspiration is free, and their organs stretched out by due degrees to their proper extension."

Without the assistance of pure country air, children are not likely to derive much benefit from any other means. We ought therefore to make choice, as far as lies in our power, of a dry and temperate atmosphere, untainted with exhalations and, known by experience to be, salubrious ; and sudden extremes of heat and cold should be avoided as much as possible.

Sea-bathing, when judiciously managed, is one of the most valuable remedies that can be employed in scrofulous disorders. In delicate children the sea-water should be used warm at first, then tepid, reducing the temperature by degrees until the system is prepared to withstand the shock of immersion in the open sea.

All scrofulous people of delicate constitution and those affected with chronic diseases, should wear flannel constantly

next the skin; this is the best safeguard in protecting the body from the injurious influence of damp and variable climate; and although it may be worn of a thinner texture during the warm weather, should never be entirely thrown off. Flannel gently stimulates the skin, promotes the insensible perspiration, while it absorbs the moisture as it is thrown out, and tends greatly, under all circumstances, to keep up an equable temperature; this last is an object of much importance where there are great, and often sudden vicissitudes of the temperature of the climate.

The giddy practice of throwing aside our winter garments too early in the spring, and of exposing our bodies, when overheated, to sudden colds, has destroyed more than famine, pestilence and sword.

Much depends in counteracting the disposition to scrofulous maladies upon the management of childhood. If the physical education of early life is of the utmost importance, the moral training, even from the earliest dawn of reason, also demands the strictest attention. Parents should commence early to discipline the minds of children and train them to habits of obedience, for on this their future health in a great measure depends. How often do we see that those who have been over-indulged and pampered when children, are unable in after life to control their appetites and passions, and thus cause the disease to be lighted up in the lungs, when it otherwise might have remained quiescent or inactive during a long life time.

Cure and prevention thus go hand in hand.

Treatment.

The treatment of the primary local inflammation will be found in the appropriate articles. With regard to the glandular abscesses, it would seem to be more reasonable to favor an outward discharge of the matter than to strive to promote its absorption. Scrofulous bones have been removed with the same intention.

The following is highly recommended: Iodine, six (6)

drachms ; iodide of potassium, a troy ounce and a half ; distilled water, one (1) pint ; dissolve. Dose, five (5) or six (6) drops in water, twice a day.

If there is considerable debility, the iodide of iron in doses of twenty five (25) drops in water, three times a day, is an excellent remedy.

Before the tumors are sore, bathe them several times a day with a solution of muriate of lime, in the proportion of two (2) drachms to the ounce of water. If they are inflamed, apply poultices of powdered slippery elm, and bayberry, equal parts, or flaxseed, or bread and milk.

If the tumors are sore, use the following : Muriate of ammonia, two (2) drachms ; distilled water, one (1) ounce ; dissolve the ammonia in the water, and add tincture of conium, one (1) ounce. Apply to the tumor on a piece of cotton or lint, and keep it constantly moistened with the lotion. The compound plaster of belladonna, is also recommended.

When ulcers or abscesses form, they should be syringed out daily with a mixture of castile soap-suds, spirits, and water, followed by a solution of vegetable caustic. The ointment of bayberry, or red oxide of lead plaster, spread on lint, may be used after this. If there is considerable inflammation, apply at night a poultice of slippery elm, and bayberry barks.

General treatment.

The patient should indulge in sea bathing, breathe the sea air, take plenty of exercise, and eat nutritious food.

Homœopathic treatment.

The principal remedies are, sulphur, mercury, iodine, hep-
par sulphur, baryta, conium, balladonna, lycopodium, sepia,
calcareo, rhus tox., aurum, china.

Belladonna.—Swelling of the gland with suppuration ; inflammation and swelling of the bones ; pain in the ball of the eye, with heat and redness ; roaring in the ears ; painful ulcers on the skin.

Calcareæ.—Suitable in those cases where the menses appear too early, or too profuse. It is valuable in children who have the appearance of scrofula. Cod liver oil is another valuable remedy.

Administration of remedies.

Of the remedy chosen, take a dose (four (4) globules) every night. Continue each remedy as long as there is improvement.

ASTHMA.

The earliest historical traces of this affection are now believed to have been lost. It is said to be mentioned in the Bible, was described by Hippocrates and other eminent ancient medical writers. It is quite questionable whether the disease then treated of, was the distinctive disease now treated under that name. That a similar disease was known and treated among the ancients, and like the "star of empire" westward wended its way, over the continent of Europe, there abiding, as also in England, for centuries, thence flitting across the broad Atlantic, and together with civilized occupation establishing itself in America. The theories as to the origin and development of the disease have been various; hinging materially, so to speak, upon the assumption or denial of its nervous origin. I will not, it is unnecessary to, consider these theories. Briefly it would appear, if not strictly a nervous affection, closely allied thereto; an affection *sui generis*, which, as the absence of physical signs denotes the integrity of the thoracic organs arises independent of organic lesions. In many cases of the attacks, we have an intense and agonizing condition of difficult breathing suddenly arising in the midst of perfect apparent health, as suddenly relapsing again into a state of ease and tranquility, the respective physical signs for heart disease, bronchitis and emphysemia, which alone are capable of producing such symptoms, being absent both before and after the paroxysm.

Watson says: "The bodies of asthmatics have often on

being examined after death, presented no vestige whatever of disease, either in the lungs or heart; evidence that the phenomena attending a fit of asthma may be the result of pure spasm." Another author says: "If death from some other cause gives an opportunity of examining the lungs, they may be found apparently in every way healthy, no trace of inflammation or its products. The vesicular structure perfectly normal, the cavities of the pleura free from all abnormal contents, the heart sound." Thus by the results of post-mortem examination upon the principle that affections which leave no trace of their existence, produce their symptoms through the nervous system, is asthma considered a nervous affection.

It has been computed that thrice as many males as females have asthma and *per contra*, twice as fatal to females as males. Flint, (an undoubted authority) says. "Formidable as the affection appears, when a patient is experiencing an attack of great severity, and intense as is the suffering, it is doubtful if a fatal termination ever took place." Quain says: "Patients rarely if ever die of spasmodic asthma, though death may ensue from some of its complications and sequelæ," that, "the question of recovery depends to a certain extent, (1stly) on the possibility of the removal of the exciting cause; (2ndly) on the age of the patient; (3rdly) on whether the attacks increase or not in frequency; (4thly) on the condition of the lungs and breathing in the intervals." A writer of an article on this malady, who says he has treated nearly three thousand cases in three years, assuring his readers that his computations are correct, asserts that, in the United States, not far from "one hundred and fifty thousand persons" are troubled with this malady, to which "twenty-thousand" new cases are added yearly, of which, nearly "twelve thousand die each year." Twelve thousand a year! a most startling array if true. He further says: "Very few children are afflicted with asthma before reaching the twelfth year," that there were "eighty-seven" such out of "two-thousand seven hundred and ten" recorded cases, "three

hundred and fifty-six " were attacked between the age of " twelve and twenty years," " six-teen hundred and eighty-four " between " twenty and thirty-five," " ninety-six " between " thirty-five and forty-five," and " four hundred and eighty-seven " between " fifty-five and seventy-five " years of age.

Da Costa says : " That asthma consists in a 'spasmodic narrowing of the bronchial tubes caused by a contraction of the circular muscular fibre.' "

Cause.

Again quoting from Quain : " The causes that induce an attack of asthma are various, and may be roughly classed according to their action, direct or indirect, on the respiratory organs. In the former the exciting cause immediately affects the mucous membrane, in the latter it does so in a more circuitous manner through the blood or nervous system generally." Direct causes are : " Dust, vegetable irritants, chemical vapor, animal emanations, climatic influence, bronchial inflammations. Indirect through the nervous system, centric and excito-motor ; through the blood—gout, syphilis, skin diseases, renal diseases, and heredity." Arising primarily from one of the above causes, we have, says another writer : " a partial closing of the pores of the skin, or a partial suspension of their healthy action. This closing or suspension of action is from numerous causes, and not from disease in the organ themselves. Every asthmatic who closely observes his own case, will find the following things to be true : Before the commencement and during the continuance of an asthma spasm, the urine is changed in appearance and increased in quantity. This changed appearance and increase coming from the help the kidneys are trying to render the suffering skin."

If the spasms be violent and protracted, a looseness of the bowels often follows ; the lungs become laden with effete matter that should have been carried off through the pores of the skin, and suddenly set up a labored effort to expell the accumulated debris. The bowels, the kidneys, the

mucous membrane, especially of the head and nose,—as may be observed in that form known as “hay asthma,” or “fever,”—becomes auxiliaries to the bronchial tubes in discharging this debris that should have been excreted, *via* the glands and pores of the skin. The sputa of asthmatics has been found upon analyses to contain the constituents of these excretions.

That large nerve the *pneumogastric*, which has a more extensive distribution than any of the other cranial nerves, measurably, affects or controls respiration through branches to the lungs; the functions of the stomach through other branches connected with that organ, as also the heart with others to it, though just how, in the latter organ, is perhaps not yet fully understood. It is this great nerve with its extensive ramifications, that seems to be so particularly affected in asthma.

Symptoms.

Its name indicates the principal symptom of the disease: “I breathe with difficulty.” Dunglison defines it as “a disease of respiration, characterized by difficulty of breathing, recurring at intervals accompanied with a wheezing sound and sense of constriction in the chest, a cough and expectoration.” In some cases the attack is preceded for a day or more by a loaded tongue, some pains and weight in the head, often great drowsiness, or wakefulness, flatulence, itching under the chin; in others there are no premonitory symptoms, difficult breathing predominant, the onset sudden, the patient aroused perhaps at midnight by a dreadful feeling of suffocation, sits up or is propped up in bed, or stands up, leaning forward; or upon the knees with hands clenched, mind intensely alert, chest expanded to its utmost by the accessory as well as principal inspiratory muscles, all quivering with the effort of inspiration and expiration; the countenance anxious with pallor, coldness, and in severe cases lividness of face and hands, perspiration often copious, respiration, prolonged, wheezy shrill or whistling. Cough

is present in nearly all cases, sometimes very severe, greatly aggravating the patient's suffering. At times the attack suddenly ceases. These attacks and their duration are very variable, sometimes passing off in a moment or two, others, in a few hours; again it may continue for days or even weeks, the patient scarcely free from one attack until beset by another, having again and again to pass through those terrible hours of distress—from midnight until daylight. It is said, this is a serious affection not so much because of its fatality, but on account of the suffering it occasions.

Treatment.

Unnumbered are the remedies that have been used for the relief or cure of this malady, owing largely, perhaps, to the fact that this disease has the peculiarity to a remarkable extent of yielding in one case to a remedy that has no effect in another. Unglazed paper that has been soaked in a strong solution of saltpeter and dried, or preparations of stramonium, fennel, tobacco, etc., etc., slowly burned in a close room or smoked, the patient inhaling the fumes, are remedies in frequent use, as is also mustard in foot-baths and in plasters applied between the shoulders.

Oil of origanum,	. . . . .	2 drachms.
Alcohol,	. . . . .	1 ounce.
Olive oil,	. . . . .	1 “
Aqua ammonia and cloroform, each,	. . . . .	$\frac{1}{2}$ “

Applied to the throat and chest with considerable friction affords great relief.

Ext. of henbane,	. . . . .	6 grains.
Tartar emetic,	. . . . .	$\frac{1}{4}$ grain.
Nitre,	. . . . .	8 grains.
Peppermint water,	. . . . .	2 ounces.

To be taken at onset of attack.

Camphor,	. . . . .	3 grains.
Musk,	. . . . .	5 "
Opium,	. . . . .	1 grains.

Mucilage, enough to make two (2) pills. To be taken at the commencement of an attack and repeated every two hours if necessary ; or :

Laudanum and ether, each,	. . . . .	40 to 50 drops.
Peppermint water,	. "	2 ounces.

To be taken at onset of attack.

Opium,	. . . . .	1 grain.
Carbonate of ammonia,	. . . . .	5 grains.
Camphor,	. . . . .	1 1/2 "

Mucilage to make two (2) pills, repeat every two hours. Wine of ipecac with tinc. of lobelia 1/4 to 1/2 fluid drachms, each, every half hour until nausea or expectoration is produced, is a most excellent remedy. Belladonna is much used. A teaspoonful of ether, taken internally, will afford instantaneous relief from the most violent spasms.

Spts. of turpentine,	. . . . .	1/2 ounce.
Chloroform and ether, each,	. . . . .	2 drachms.

From 1/2 to one (1) teaspoonful of this poured upon a sponge and the sponge placed upon the pillow where the fumes may be inhaled, will very frequently afford immunity from attack during the night and not distress the patient.

Hoffman's anodyne, in 1/2 to one (1) drachm dose, or hydrate of chloral in twenty (20) to thirty (30) grain doses. Iodide of potash or bromide of potash, commencing with three (3) grains of the latter, and increase to eight (8) grain doses, in the course of three or four months, has claimed for it the virtue of curing most violent attacks of the disease.

Apomorphia in a one-tenth ($\frac{1}{10}$) grain hypodermic injection, I have found very excellent as an antispasmodic.

The following is Dr. Hurchard's much praised anti-asthmatic remedy.

Distilled water,	. . . . .	10 ounces.
Iodide of potash, tincs. of lobelia and		
polygale, each,	. . . . .	$2\frac{1}{2}$ drachms.
Aquaous ext. of opium,	. . . . .	$1\frac{1}{2}$ grains.

Give a tablespoonful night and morning.

Roberts, Barthalow. A. M., M. D., Dean of the Jefferson Medical College of Philadelphia, the author of standard works on *Materia Medica*, *Practice of Medicine*, and others much quoted, gives the following as a most effective remedy in asthma :

Tinc. of lobelia,	. . . . .	1 ounce.
Iodide of ammonia,	. . . . .	2 drachms.
Bromide of ammonia,	. . . . .	3 drachms.
Syrup of tolutan,	. . . . .	3 ounces.

Dose, a teaspoonful every one, two, three or four hours.

Of this Dr. Barthalow says: "It gives relief in a few moments, and often the relief is permanent." I have prescribed it often, but with variable success. Dr. B. W. Hair's asthma cure, dose, a tablespoonful one hour after each meal and upon going to bed, and a teaspoonful before sponging in the morning has thus far been an unfailing remedy in my practice. It has fallen to me to prescribe almost all the remedies herein referred to and many others in the treatment of this erratic disease, and have thus far found but the one remedy sovereign in these cases.

Between attacks, endeavor should be made to rectify digestion and its tributary processes, and to invigorate the nervous system. I would especially impress upon asthmatics that too great care cannot be given to the general health,

and that bathing is an important factor, and but few cases of successful cure are accomplished without it. As a preventive I know of nothing better, in my judgment, than properly administered cold water baths. Commence with a tepid water bath daily, gradually changing to cooler until cold water can be borne without danger. The addition of salt is advantageous in many cases. During an attack where there is much debility after bathing the body, a lotion of hydrochlorate of ammonia, one (1) ounce to the pint of water, applied to the thorax, is of great benefit.

Homœopathic treatment.

When the respiration appears to become more and more laborious, give ipecacuanha. Dose, in acute cases, every half hour, every three hours in less urgent instances. In chronic cases, every twelve hours for four days, then pause six days and if necessary repeat the course.

Aconite is given specially in sensitive persons, and young girls of plethoric habit. Dose every half an hour at first, then every three hours, the medicine at the same time being administered by spray producer.

Lobelia, in tightness of the chest and laborious breathing, with disposition to keep the mouth open, in order to breathe, a feeling as if something had fallen out of place, and which goes back only with great pain. Dose every half hour at first, then every three hours

Nux vomica, *pulsatilla* and *antimonium tartaricum* are each in some cases efficacious. Besides these specific remedies we have the following accessory treatment which will sometimes cut short an attack. A sufficiency of fresh air during an attack.

Sipping hot water, tea, broth or strong coffee, or inhaling common salt, dissolved in hot water—when nothing else is at hand. The burning of brown paper, previously soaked in a strong solution of saltpeter, is a great relief to many.

With some, nothing but change of air prevents a succession of attacks. There appears to be no rule whatever which

is likely to suit all causes. Daily ablutions, friction with flesh brush and the shower bath in summer, will prove of great service. Dr. Massey recommends, in some cases, to increase the temperature of the patients room by a peat or wood fire, which gives a lighter atmosphere than coal. . He also suggests friction to the feet, hands and spine, in order to promote expectoration.

Asthmatic patients should strictly avoid all stimulating food and drinks. The diet should be generally of a nourishing description, although plain, wholesome and easy of digestion. Heavy meals should be avoided.

My apology for having treated a disease (usually briefly treated) at such length is, that it is a disease widely diffused, the sufferers counted by the hundreds of thousands, their sufferings great.

HAY FEVER OR HAY ASTHMA.

From the study of hay fever in the light of the most recent investigations as to its cause, and our present knowledge of nasal diseases and their influence on other organs, we may draw the following conclusions.

1. That hay fever is an affection not confined to age, sex, or condition in life.
2. That it is excited by the pollen of flowers or grasses, dust, or other irritating substances, floating in the atmosphere, which are brought, by inhalation, in contact with the nasal and bronchial mucous membrane.
3. That the nasal mucous membrane in certain individuals is very susceptible to the irritating effect of these substances, while in others it is not.
4. That this hyperæsthesia is associated with or occasioned by a diseased condition, either latent or active of the naso-pharyngeal mucous membrane, and with an hypertrophied condition of the vascular tissue covering the turbinated bones, and the lower portion of the septum.
5. That the systemic disturbances, such as asthma, etc., are the effect of the local irritation of this diseased tissue in

the nasal passages which is reflected ; to the larynx, bronchi, and lungs, causing in them a functionary hyperæmia, produced through the correlating function of the sympathetic ganglia connecting these different regions,"

6. That the treatment during the attack can only be palliative, such as to soothe the inflamed parts and to quiet the systemic disturbance which may be occasioned.

7. That in most cases the only effective relief during the attack consists in going to a seaport or mountainous region, or to any locality where the air is free from the substance which produces irritation.

8. That curative measure can only be adopted when the individual is free from the attack.

9. That the removal of the diseased tissue in the nasal passages removes the susceptibility of the individual to future attacks of hay fever.

THE HEART.

AND ITS DISEASES.

In order that you may the better understand the diseases to which the heart is subject, I have deemed it advisable to review briefly a description of the labor performed by the heart in the circulation of the blood.

The heart is an organ situated in the left cavity of the chest, resting on the diaphragm or midriff, to the left of the sternum or breastbone, between the fifth and sixth ribs. It is contained in a strong membraneous sac termed the *pericardium*, which secures it in its proper position. It is divided into four cavities, termed the *auricles* and *ventricles*, one of each in either side. It continually contracts and dilates, and at each pulsation forcing the blood to every part of the body. The blood is the food of the flesh. The heart contracts and throws the blood into the lungs to be

vitalized ; from the lungs it is carried back into the left side of the heart ; the heart contracts and throws this renovated blood into the arteries, and by them it is carried all through the system to nourish it. It is returned by the veins to the right side of the heart, where it is poured into the heart, mixed with the chyle, and again sent to the lungs.

A close study of the following rules, in conjunction with the foregoing descriptions will enable one to decide upon the nature of the disease of this organ. They have been established by some of the best minds of the day, and in the absence of the physician will do much toward helping you in your diagnosis.

1. " In health the cardiac dullness, on percussion, measures immediately below the nipple, two inches across, and the extent of the dullness beyond this measurement commonly indicates either the increased size of the organ or undue distension of the pericardium."

2. In health the apex of the heart may be felt and seen to strike the chest between the fifth and the sixth ribs, immediately below and a little to the inside of the left nipple. Any variations that may exist in the position of the apex are indications of the disease, either of the heart itself or of the parts around it.

3. A friction murmur, occurring in equal time with the heart's movements, indicates pericardial or exo-pericardial exudation

4. A bellows murmur with the first sound, heard loudest over the apex, indicates mitral insufficiency.

5. A bellows murmur with the second sound, heard loudest at the base, indicates aortic insufficiency.

6. A murmur with the second sound, loudest at the apex, is very rare ; but when present it indicates—first, aortic disease, the murmur being propagated downward to the apex ; or, second, roughened auricular surface of the mitral valves ; or, third, mitral obstruction, which is almost always associated with insufficiency when the murmur is double or occupies the period of both cardia sounds.

A murmur with the first sound, loudest at the base and propagated in the direction of the large arteries, is more common. It may depend—first, on an altered condition of the blood, as in anæmia ; or, second, on stricture of the aortic orifice or disease of the aortic valves, in which case there is always insufficiency also, and then the murmur is double, or occupies the period of both sounds.

8. Hypertrophy of the heart may exist independent of valvular diseases, but this is very rare. In the vast majority of cases it is the left ventricle which is affected, and in connection with mitral or aortic disease.

In the former case the hypertrophy is uniform, with rounding of the apex ; in the latter there is dilated hypertrophy with elongation of the apex."

Attention should also be paid to the pulse. Thus the pulse in mitral (pertaining the valves of the left ventricle) disease, is soft and irregular ; but in aortic (pertaining to the large artery) disease, is hard, jerking or irregular ; while affections of the brain are most common in aortic disease, while affections of the lungs are more urgent in mitral disease.

INFLAMMATION OF THE HEART, OR CARDITIS, OR MYOCARDITIS.

This disease may be caused by blows upon the chest, or by the extension of inflammation from surrounding parts ; its most frequent cause is rheumatism. Persons liable to acute rheumatism are very frequently attacked by inflammation of the heart. so much, indeed, is this the case, that a celebrated physician thinks that one out of every three rheumatic patients labors under an inflammatory affection of the heart.

As inflammation of the heart and its appendages presents many of the symptoms of pleurisy or pneumonia, and most commonly occurs in conjunction with one or both of these diseases, it is often very difficult to diagnose it, or point out the symptoms which will determine its presence or absence ; and as the treatment is precisely the same, it is of little consequence whether the inflammation be known as involving

the heart or the lungs only, or its investing membrane, or only the pleura, or whether both are implicated.

Symptoms.

Inflammation of the heart is not shown by any very clear or positive symptoms. The heart seems to bear inflammation without suffering much. The symptoms of inflammation of the heart will vary much, according to the severity and extent of the disease ; the principal signs by which it may be recognized are, fever, with pain about the region of the heart ; the pain generally shoots through the chest to the back, underneath the shoulder-blade, and is much increased when we push the fingers over the heart, or push up the contents of the belly towards the point of the heart. The breathing is hurried, and a dry cough torments the patient, who is unable to lie on the left side. The beating of the heart is generally strong, and extends over a considerable part of the chest ; the pulse is full, and gives a bounding feel under the finger. As the disease advances, the palpitation of the heart is less evident, because fluid has now been poured out into the fibrous bag or *pericardium*, but the anxiety and difficulty of breathing increase. If the region of the heart be carefully examined, a puffiness or swelling will be perceived between the ribs ; the pulse becomes quick, weak, and fluttering ; the features are contracted ; the face swollen or livid, and the patient lives but a few days, or may linger on for two or three weeks.

In very many cases inflammation of the heart is not attended with such evident symptoms, but we may suspect its existence if the patient, after having suffered under rheumatic fever, complains of a load, or fullness about the heart, with dull pain, restlessness, anxiety, and occasional palpitation.

PERICARDITIS, OR INFLAMMATION OF THE EXTERNAL COVERING OF THE HEART.

It frequently arises from acute rheumatism, from the con-

taminated state of the blood produced by renal disease, from damp and cold, and from mechanical injuries. May be reduced to two classes : 1. Rheumatic pericarditis. 2. Non-rheumatic pericarditis. In the first, the disease is always well marked, it is associated with affections of the joints, women appear rather more subject to it than men, and it is rarely directly fatal ; in the second, the inflammation appears at a later period of life, is most common in men, occurs most frequently in bad constitutions, and is very often fatal.

Symptoms.

These are high fever ; pain referred to the region of the heart, often darting through the left shoulder-blade, upward to the left collar-bone and shoulder, and down the arm ; violent palpitation, the motions of the heart being tumultuous, and perceptible at a distance from the patient ; irregularity of the pulse ; hurried respiration ; incapacity of lying on the left side ; strong pulsation of the carotids ; anxiety of countenance ; and frequently noises in the ears, giddiness and bleeding at the nose. As the disease advances, there is extreme debility, cough, suffocative paroxysms, occasionally a tendency to fainting ; the heart's action also becomes much weaker, the impulse irregular and trembling, and the sounds weakened and altered in character. In severe cases indications of disturbance of the nervous centres frequently show themselves ; especially great restlessness, distortion of the features, tetanic spasms, and delirium.

ENDOCARDITIS, OR INFLAMMATION OF THE MEMBRANE WHICH LINES THE INTERIOR OF THE HEART AND ITS VALVES.

It is of great interest, owing to the severe organic diseases which spring from it.

Symptoms.

It chiefly gives rise to a sense of oppression and uneasiness in the region of the heart, fever, small, feeble, and intermittent pulse ; great anxiety, cold sweats and syncope.

When the inflammation is only of limited extent, or when it assumes a chronic form, the symptoms are much milder and more obscure.

Diagnosis.

If we apply the hand to the chest in simple endocarditis, the action of the heart will appear to be very violent; sometimes a vibratory thrill will be felt. Percussion often discovers an augmented extent of dullness in the precordial region; this dullness may be distinguished from that caused by pericardial effusion, by the beat of the heart appearing superficial instead of remote and distinct. If we listen to the heart's action we shall detect a bellows-murmur, the most constant and characteristic of the phenomena of endocarditis.

Treatment.

The two principal indications in the treatment of acute inflammation of the substance of the heart, are to support and strengthen that organ, and to relieve the pain and distress. Local anodynes, especially in the form of preparations of belladonna, and poultices; and stimulating counter irritants, such as mustard cataplasms, will conduce to fulfill the second indication. Such relief is the first essential, if rest is to be secured.

The patient must be spared the very smallest exertion. Food must be given in small quantities, and be easily digestible and highly nutritious. The bowels must be kept open; and the flow of urine should be as free as possible.

Digitalis, ammonia, and other cardiac stimulants should be given cautiously at the same time so as to strengthen the cardiac action, whilst diuresis is encouraged.

Dr. Renzi has evidently studied with care the actions of three important drugs largely used nowadays in heart disease, viz., bromide of potassium, iodide of potassium, and chloral hydrate; and he has given some important information regarding them. Bromide of potassium is shown to have

such a direct influence on the heart and capillaries as to entitle it to a high position among the cardio-vascular drugs. According to Prof. Dujardin-Beaumetz, who considers it one of the best heart tonics we possess, the bromide besides being a nervine sedative, acts directly on the heart, and lessens considerably any irregular action of that organ. He says that, as a nervine sedative, the drug is useful in counteracting the sleeplessness which so greatly enfeebles and wears out the patient suffering from heart disease, while its value in such cases is greatly enhanced by its direct beneficial action on the diseased organ itself. According to Prof. See, bromide of potassium is especially useful in heart affections where we have diminished arterial pressure, rapid and irregular action of the heart, passive congestions, œdema, cyanosis, dyspnœa, and sleeplessness.

Iodide of potassium is shown to be very beneficial in dyspnœa arising from heart disease. It is also of great value in arresting degenerative changes in the heart tissue.

The action of chloral hydrate on the heart is at once to diminish the rapidity of its action, and after a time to reduce its energy. The drug seems to act on the heart by paralyzing either the cardiac ganglia or the vasculo motor centres in the brain. The researches of Claude Bernard, Rokitsanski, and others, would indicate that the latter are chiefly affected by the administration of chloral, for they found that it caused great diminution of blood pressure by dilatation of the capillaries.

In summing up his observations on the three drugs referred to, Prof. Renzi says of bromide of potassium that it lessens the anxiety of patients suffering from heart disease, gives them a certain sense of comfort, and enables them to breathe freely. Under its influence sleep is more easily obtained, is more tranquil, and of longer duration than when induced by other drugs. It is moreover, a more natural sleep. The bromide reduces undue rapidity of the heart's action and respiration. Cough, however, seems to be aggravated by the use of bromide of potassium alone.

Of iodide of potassium, it is a most useful drug in diseases of the heart. One of its chief effects is a complete relief from dyspnœa and all asthmatic symptoms.

Cloral hydrate is not much esteemed by him. It can procure sleep of a kind, but is of no use in relieving the dyspnœa so troublesome in cases of heart disease. It is moreover dangerous when given in conjunction with iodide of potassium, the latter drug apparently having the effect of greatly increasing its soporific action.

From Prof. Renzi's summing up, it would seem that a combination of the iodide and bromide of potassium is a most beneficial remedy in cases of heart disease.

Homœopathic treatment.

Aconite should be given in every case.

Bryonia may also be given when there are stitching pains in the chest, aggravated by breathing and motion, rapid and painful breathing, dry and spasmodic coughs, sharp pain extending between the shoulders, and back between the shoulder blades.

Digitalis.—Sharp stitches, and contractive pain in the region of the heart, palpitation of the heart caused by bathing, movement, or lying down; a sense of oppression and anguish in the chest, frequent attack of faintness, general weakness.

Other remedies are *nux vomica*, *coculus*, *arsenic*, *pulsatilla*, and *cannabis*.

Treatment of pericarditis.

The treatment of pericarditis must be regarded to some extent by the nature of the disease with which it is concomitant. If it concur with pneumonia or pleurisy, it may safely enough be entrusted to the remedies employed for this disease; or should it accompany rheumatism then we must treat it as part of the rheumatic affection. Rheumatic pericarditis ought therefore to be treated simply as rheumatic affection. As severe pain in the heart has a tendency to

depress its action it is best to relieve it at once; with this view a large warm poultice should be applied at once, over the heart. Morphine injected sub-cutaneously—or by the mouth, at regular intervals, so as to keep the patient free from pain. Perfect rest should be enjoined. Should there be any tendency of the heart's action to fail, digitalis should be administered at regular intervals in doses sufficient to keep up the heart's action.

Ten (10) minims of the tincture every four hours, and with this may be combined in five (5) or ten (10) grain doses, the use of chloral, which acts both as a sedative and as a remedy to reduce the inflammation.

It may well replace the morphia not producing the sweating that the morphia does.

Homœopathic treatment

Aconite. Stitching, tearing pains, shifting from one part up the chest to another.

Veratrum viride.—Pricking or aching pains in the region of the heart, with constant burning and distress; it is also useful when the heart beats are low and feeble.

Arsenic.—Excessive rapidity of pulse, cannot lie on the left side, extreme coldness, apprehension of death.

Bryonia, cannabis, sativa, cemicifuga veratrum, album, colchicum and *digitalis* are all useful.

ENDOCARDITIS AND COMPLICATIONS.

Endocarditis is itself always a complication of the diseases previously mentioned. Myocarditis and pericarditis may be correctly regarded as complications of endocarditis, when the inflammation begins in the lining membrane of the heart. According to some authorities clots may form in the heart in endocarditis, and give rise to very urgent symptoms.

Embolism may arise from detachment of fragments of the coagula or vegetations, and this condition and the development of pyæmic symptoms are essential elements in the course of the ulcerative form of the disease.

Treatment.

The treatment of acute endocarditis has to be discussed under three heads, viz : first, preventive ; secondly, immediate ; and thirdly, subsequent treatment.

Preventive treatment.—When a patient is suffering from any disease which may become complicated with endocarditis, and especially if he be suffering from acute rheumatism, every means must be adopted to prevent as far as possible the occurrence of this complication. Thus in acute rheumatism, it is all important to check at once, the intensity of the disease by recourse to salicylic acid, and other means, for experience shows that when endocarditis does occur in acute rheumatism, it generally makes its appearance within the first week. The pressure within the heart, is an important factor in the causation of endocarditis, and this pressure must be reduced by diminishing the work to be done by the heart without lowering the cardiac power. Rest must therefore be enforced in the recumbent posture—an end which is usually already secured by the presence of acute rheumatism of the joints. The personal comfort of the patient must be zealously attended to and the pain relieved, so that restlessness and irritability may be avoided, and for this purpose carefully selected anodynes may be necessary.

The bowels must be regularly and fully moved, and the various secretions must be kept as active as possible. During the attack if endocarditis really occurs, the treatment suggested, must be persevered in, rest rigidly enforced, and local applications may be employed for the relief of the joints, such as cotton wool, and hot poultices, adding a few drops of aconite or belladonna. This treatment is preferable to opium, chloral or the cardiac depressants. In ulcerative endocarditis, quinine in large doses, and salicylic acid are the remedies which promise most success, and all the ordinary measures for support in fever must be preserved in subsequent treatment.

When the rheumatism which was the primary cause, is subsiding, and the indications point toward convalescence,

the diseased endocardium must not be forgotten, as it is probably in the condition of great physical weakness and the seat of new cell growth. Instead of urging the patient to sit up and walk about, as was urged under the rival method of treatment, he must be recommended to a very gradual return to exercise and a most zealous avoidance of excessive exercise. There can be no question, that at this stage rest is more important than medicinal treatment. At the same time tonics should be employed.

Homœopathic treatment.

Laurie says: "This affection very often ensues in the course of rheumatic fever in connection with inflammation of the pericardium, though sometimes it takes place without it.

It is also met with in small-pox, in typhus and enteric fever, and also in Bright's disease. From the peculiar results of this inflammation being met with after death, in persons in whom it was never suspected during life, it is evident that it often does occur, and not in conjunction with any other disease.

Cause.

From the fact of the left side of the heart being alone affected, it is evident that some poisonous matter, circulating in the blood, is the origin of the disorder. In rheumatic fever, this is no doubt lactic acid. Of itself it is rarely a fatal disease, but to be avoided for its results which are valvular disease from fibrinous deposits, adhesion or ulceration, leading to enlargement of the heart and ultimately dropsy; or the effects of fibrine, the proceeds of the inflammation, circulating in the arteries, and giving rise to plugging in the brain or embolism, which leads to paralysis. The medicinal treatment is in every particular that prescribed for pericarditis.

Accessory treatment.

As perfect rest as possible, both for mind and body. Hot

air, or lamp baths occasionally, and hot fomentations to the chest.

Diet.

At first light, as weak black tea, cocoa, milk, oatmeal gruel, arrowroot, chicken and mutton broth; as soon as the strength flags, Liebig's extract, good unseasoned soup, beef-tea, with stimulants when the pulse gets feeble.

HYPERTROPHY.

An excessive development of the connective tissue, which exists between the muscular fibres of the heart, causing an increase of the volume of the organ.

DILATATION OF THE HEART.

Dilatation of the heart may occur in two forms, in the one it involves only a limited portion of the cardiac walls and constitutes an aneurism; (see aneurism) in the the other there is uniform enlargement of one or more of the heart's cavities, and dilatation in the usual acceptation of the word is present. Dilatation is probably always associated with hypertrophy. We will therefore consider this form of diseases under the common name of

ENLARGEMENT OF THE HEART.

It is a well known fact that when a muscle is much used it gradually increases in bulk and strength. The same principle applies to the heart, which is merely a hollow muscle; whenever any obstruction exists to the free passage of blood from the heart, or whenever the organ is excited to violent efforts, either through mental emotions or bodily actions, (as running, rowing, etc,) the muscular substance of the heart may gradually increase in bulk, until it becomes three times as large as it should be. The symptoms of enlarged heart are usually very decided, The first sign is a constant palpitation; the organ beats powerfully against the ribs, and its pulsation is felt over a large portion of the chest. This pal-

pititation may continue for some time without any other symptom, but other effects are sooner or later felt ; the face becomes florid and afterwards purplish ; the patient often complains of a "rushing of blood to the head," ringing in the ears, etc. ; there is a dry, hacking cough, with fits of suffocation, from congestion of blood in the lungs ; and from the same reason, the patient is sometimes seized with a violent spitting of blood, because some of the blood-vessels in the lungs have been burst by the violent pumping-action of the heart ; as the enlargement of the heart becomes greater, the palpitation seems to abate, because the heart has less room to beat in its fibrous bag ; but the suffocation increases, the extremities become infiltrated with fluid, and the patient either dies of dropsy in some cavity, or is cut off by a fit of apoplexy, or by spitting of blood.

Treatment.

The treatment of enlargement of the heart is to be conducted upon principles which are very easily understood. The heart is too strong ; we must therefore endeavor to lessen its force and to avoid any excitement which may bring it into action. The patient must observe a very strict diet, eat nothing but white meats in small quantities, and abstain totally from beer, porter, wine or spirituous drinks. Any exercise which is taken should be of the easiest kind.

Bowels must be moved two or three times a day by Epsom salts. When symptoms of dropsy have come on, or it appears that the patient will not bear the loss of blood, elaterium should be given, so as to produce three or four watery stools in the twenty-four hours. The dropsical effusion will also be relieved by the constant use of remedies which increase the discharge of urine.

The patient must, in all cases make up his mind to pursue this treatment steadily, until the disease has been completely subdued, and after a cure, to avoid all violent exercise.

In treatment of the valvular disease or mental emotions of the heart, three indications have generally to be followed :

1st. To abate inordinate action of the heart by sedatives, as digitalis, hydrocyanic acid, and morphia.

2d. To ward off or gradually relieve the results of the cardiac disease, such as pulmonary congestion, pneumonia, hemorrhage, congestion of the liver and kidneys, dropsy, etc., by a nutritious diet, and by maintaining the various secreting organs in a healthy state.

3d. To endeavor to give strength and tone to the heart, so as to assist it to do its work, by nourishing food, breathing pure air, warm clothing, early hours, avoidance of all bodily and mental excitement, and by the administration of tonics—especially the various preparations of steel.

What we have principally to attend to in valvular disease of the heart is, to do all in our power to support the normal strength and avoid agitating the patient. Pain, angina and paroxysmal attacks may be relieved by the cautious use of morphia or digitalis, used as palliatives. The prominent feature to be remembered is to build up and sustain the system; use good, nutritious diet; avoid tea, coffee and tobacco; use such tonics as tincture of Peruvian bark or quinine; keep the bowels in a healthy, soluble condition, or at least have one operation every day; avoid all kinds of excitement and take exercise in the open air.

Homœopathic treatment.

Dr. Russell contends, says Laurie, that the administration of *naja* will, in most cases, prevent the deposit of lymph or fibrine, and effectually prevent valvular disease.

Aconite, *veratrum viride*, *gelseminum*, *cactus* and *arsenic*, apply to, and control many of the symptoms, after valvular disease and dilatation have become established.

ANEURISM OF THE HEART.

Aneurism of the heart is a depression or sacculus formed in the walls of the heart, communicating with one or more of its cavities. The condition which leads to this is a change in a portion of the heart's texture, by which the resisting

power of the affected part, against the pressure of the blood from within the cavity is diminished. Under such circumstances, a simple depression, corresponding to the weakened spot may be first formed on the inner surface of the heart. This gradually continues through the cardiac wall towards the external surface, where the resistance becomes less, and where a pouch or sac is then formed, communicating with the cavity of the heart, it may be by a neck. The weakened condition referred to is attributable in different instances to inflammation of the substances of the heart, whether acute or chronic; to syphilitic or other growth; and to fatty degeneration.

Death may result from the disturbance of the heart's action induced by the presence and extent of the disease; from the aneurism opening into the pericardium; or from its burrowing in the wall of the heart, and opening into another cavity of the organ, different from that in which it originated. Lastly, one or two cases are recorded in which a cure of the disease had apparently been effected by the walls of the sac becoming indurated.

Treatment.

The treatment of cardiac aneurism must be such as would be adopted in any other grave form of heart disease and according to the circumstances of each case. We can only seek to mitigate the most urgent symptoms, whether local in the heart itself, or more generally affecting the distant organs.

PALPITATION OF THE HEART.

This is a complaint which may be a symptom of some organic disease of the heart, or may be owing to general nervous debility, dyspepsia, or some other disease.

Symptoms.

There is an increase in force and frequency of the action of the heart; a rapid beating, and fluttering motion which

may be felt very plainly when the hand is placed upon the breast; shortness of breathing; sense of pain in the neighbourhood of the heart; feeling of constriction across the chest; pale countenance; difficulty in lying down; great debility.

Cause.

Palpitation of the heart is generally owing to dyspepsia or some derangement of the digestive organs. It may be brought on by great mental excitement, intemperance, nervous debility, excessive study, venereal excesses, and masturbation.

General treatment.

A person, when attacked should lie down on his back, and fill the lungs with air by drawing in full breaths. Persons subject to it should occupy their attention with such things as afford employment without agitating the mind; as music, work, domestic duties, drawing, dancing, gardening, horseback riding, exercise, and cheerful society. The diet should be well regulated, and should be nourishing, without being stimulating. Persons subject to it should forego strong tea, coffee, liquor and tobacco.

The following is said to give immediate relief:

Tincture of castor,
Sulphuric ether,
Compound spirits of lavender, each, . . . 1 ounce.

Mix. Dose, a teaspoonful every five or ten minutes until relief is obtained.

The tincture of digitalis in doses of ten (10) or fifteen (15) drops, three or four times a day, will sometimes be found to be beneficial. If there is acidity of the stomach, take magnesia, prepared charcoal, or carbonate of ammonia. Brandy or spirits with a little cayenne pepper, will sometimes readily relieve.

In functional disturbance of the heart, due to dyspepsia, use the following treatment. Apply a plaster of belladonna over the region of the heart to remove pain, a diet of milk and toasted white bread, and give of the following mixture a dessertspoonful, in half a tumblerful of water, three times daily, one hour before each meal :

Bi-carbonate of soda,	. . .	2 drachms.
Tinc. of nux vomica,	. . . .	2 fl. drachms.
Compound tinc. of gentian	. . .	2 fl. ounces.
Simple tinc. of rhubarb,	. . .	2 fl. ounces.

Shake well, and give a teaspoonful every two to four hours.

Homœopathic treatment.

If the palpitation is caused by fright, use opium or coffea. If caused by fear and and anguish, use veratrum. By sudden joy, coffea. By loss of blood or other discharges, china phosphoric acid, nux vomica, or veratrum. If it occurs in nervous persons and hysterical females, coffea, ignatia, chamomilla, cocculus, pulsatilla, lachesis, or veratrum. By the congestion of blood, aconite, belladonna, coffea, phosphorus, opium, or ferrum. By disappointment, aconite, nux vomica, ignatia, or chamomilla. If it occurs in young, growing people, aconite or pulsatilla ; if in old people arsenic or lachesis.

When the person is subject to palpitation of the heart at intervals, the following are the remedies to be given :

Pulsatilla, arsenic, lachesis, aconite, phosphorus, aurum, or sulphur.

Administration of remedies.

Dissolve of the selected remedy, twelve (12) globules in twelve (12) teaspoonfuls of water, and give a teaspoonful every half hour, hour, two, three, or four, according to the severity of the attack. In chronic cases, a dose of the selected remedy, morning and evening, may be taken. When

globules are used take from four (4) to six (6) at one dose.

FAINTING. (*Syncope*).

Fainting is a state of suspended animation due to sudden failure of the heart. It is preceded by a distress about the heart ; swimming of the head ; confusion of ideas ; cold hands and feet ; dimness of sight ; the pulse diminished ; the face becomes more or less unconscious.

Causes.

Whatever causes debility, particularly of the nervous system ; sudden surprises and emotions ; excessive pain ; great heat ; certain odors, etc.

Fainting, in most of its forms, is a purely natural and physiological condition for which there is a good *raison d'être*. Fainting from loss of blood is nature's remedy for the bleeding. The heart's action is lowered ; the blood withdrawn from the extremities (where, presumably the bleeding is going on) into the larger central vessels ; the patient lies motionless ; there are no struggles to force the blood out of the wound ; there is no pain felt. In a case of fainting, therefore, from loss of blood, simply lay the patient on the back—a little turned to one side—with the head low and the patient in a position favorable to the doctor's manipulation ; loosen all fastenings and buttons about the throat, and then await the doctor's arrival. Don't try to bring the patient around by deluging him with water. Above all give him no brandy unless by the doctor's orders. Brandy will end the faintness quick enough, but it will start the heart at double quick time, and send the blood surging through the peripheral arteries, breaking down and washing away any protective plugs of clot with which the *vis medicatrix* has probably begun to close the wounded vessels. In cases of fainting from shock or from pain the patient should be placed in an easily recumbent position, with the head low and the throat free from pressure. The forehead may then be bathed with cold water, or ammonia applied to the nostrils.

Treatment,

Ordinarily the patient should be placed on his back, and fresh air freely admitted into the room; sprinkle the face with cold water, or spirits of ammonia, rub the arms and legs; spirits of camphor, ether, or vinegar may be held to the nose. As soon as the patient can swallow, give a teaspoonful of the compound spirits of lavender, with ten (10) to twelve (12) drops of ammonia in it.

Persons subject to fainting, should avoid all crowded assemblies where the air is bad, and should not wear cravats, or tight dresses or other tight clothing.

Homœopathic treatment.

For the bad consequence which an attack may have on the nervous system, give the following remedies:

When caused by fright; aconite, opium, veratrum, staphysagria.

By great joy; coffea, opium, aconite.

By anger; pulsatilla, nux vomica, chamomilla.

By excessive pain; veratrum, aconite, chamomilla.

By slight pain; hepar sulphur.

By grief, mortification, etc., ignatia, colocynth, phosphoric acid, mercury, and staphysagria.

By fear; ignatia, pulsatilla, veratrum, opium.

By blood letting, etc., china, carbo veg., veratrum. A little wine or brandy in water may also be given.

Administration of remedies.

Dissolve twelve (12) globules of the selected remedy, in half a teaspoonful of water, and give a teaspoonful every five or ten minutes.

If not relieved in half an hour, prepare another remedy, and give in the same manner.

BREAST PANG (Angina pectoris).

Breast pang is an intermittent affection, coming on in fits at irregular intervals, and is one of the most painful and

most fatal of all diseases. The fit commences suddenly, usually when the patient is walking, with a severe lancinating or stabbing pain, generally behind the lower part of the breast-bone, extending in the direction of the left nipple. The constrictive suffocating sensation which accompanies the pain, compels the patient to stop, and, in the course of a few minutes, if quite be observed, the attack goes off. The first attacks are comparatively slight, and of short duration, no particular inconvenience being felt when they are over; but, after a time, they become more severe, and continue much longer; the pain extending to the arm, and even to the ends of the fingers, generally on the left side only, though sometimes it extends to both, accompanied with a feeling of numbness, which prevents the use of the arm. Occasionally the neck, the left jaw, and even the ear, are affected, the speech being slightly impeded, and the anxiety and suffocating sensations are frequently so severe, that the patient dreads immediate death. When the disease has advanced to this extent, the fits last from half an hour to an hour, or even longer. The respiration is usually very little affected, though it may be sometimes a little more frequent than natural. The pulse is in some cases natural; in others quick, strong, irregular, or intermitting. The face may be either pale or red; sometimes pale, or with a sallow tinge. The skin may be hot, or covered with a cold clammy sweat.

After the termination of a severe attack, the patient experiences a feeling of fatigue, and soreness of the parts affected; and the sensation of numbness continues for a considerable length of time.

Treatment.

Of the narcotic stimulant remedies, we have opium belladonna, ammonia

Anstie says: "Indisputably at the head of all this class of remedies, stands opium; as given against neuralgia, we may consider its form in morphia.

Opiates administered by the stomach can, after all, be

only considered as palliative. The mention of the injection of morphia under the skin, called hypodermic injections, has thrown an entirely new light on the use of opium as an anti-neuralgic. For the purely nervous forms of angina pectoris, sulphuric ether is said by Dr. Anstie, to have no equal. Of external remedies the following will prove useful :

Chloroform,	. . . . .	1 ounce.
Sweet oil,	. . . . .	6 ounces.

Apply freely along the course of the nerves.

Relief has been found in mustard plasters applied over the chest and between the shoulders.

The diet should be nourishing. It is absolutely necessary that it should be as abundant as possible without deranging digestion. Fatty matter should be insisted upon ; if it cannot be taken in one form, it must be in another. Great importance must be given to the wearing of warm flannel under-clothing, thick shoes and wraps when exposed to cold and damp weather. The violence of the pain is abated by inhaling five (5) or six (6) drops of nitrate of amyl. Relief is obtained by sending a current of electricity through the heart.

Dr. Murrell has tested nitro-glycerine in three severe cases, with a success quite equal to that afforded by nitrite of amyl. He gives one minim of a one per cent solution every three hours on sugar or in a little water.

Dr. Masalitinoff treated by Sculptor's clay a severe case of angina pectoris of four years' standing, in a patient aged 22, suffering from old post-rheumatic insufficiency of the mitral and aortic valves. Of late, the anginal paroxysms appeared two or three times weekly, always at night, returned from two or four times weekly, lasting from fifteen to sixty minutes, and preventing the patient from sleeping. Quinine, amyl-nitrite, arsenic, valerian, etc., entirely failed to relieve the agonising pain. Dr. Masalitinoff ordered the application of cakes of moist sculptor's clay to the cardiac region

twice a day. From the very first application, the patient felt greatly relieved, slept soundly through the night, and on the next day no traces of pain remained. At the end of three weeks, the patient remained entirely free from any cardiac pain; he was now scarcely recognisable; he became strong, cheerful, and gained in weight. The author used 'home-made' sculptor's clay in the case. He took finely ground plaster-of-Paris, and moistened it with water, thus making a soft paste, which he spread on a piece of linen and applied to the painful region.

Loewenfeld relates a case of angina pectoris in which galvanisation proved beneficial. The patient, a man, aged 47, was subject to attacks of the disease occurring every month or two. These were characterized by excited respiration, oppression, small frequent pulse, sternal pain radiating in the left arm, convulsive tremors of the limbs, and lasted about one hour. The heart was normal. The constant current was applied for one minute to each side of the neck along the course of the pneumogastric. The sense of oppression was immediately relieved. Ten such applications in the course of three weeks were followed with complete freedom from the attacks during more than two years.

Mulberger was summoned to a severe case of this nature. After watching it for a little, noticed that the patient instinctively pressed both hands against the cardiac region. As the usual household remedies had been tried before his arrival, he determined to follow up this instinctive action. He therefore had the patient stripped, and, throwing his left arm round the thorax, began to press and rub the forepart of the thorax with the back of his right fist, giving every now and again a smart blow over the heart. Immediately on his commencing this treatment, the patient expressed himself as feeling relieved, and encouraged him to carry it out energetically. Dr. Mulberger does not pretend to explain the rationale of this treatment; but says it may have some analogy to the massage of spasmodically contracted muscles. This was the patient's second attack. No abnormality could be detected

in the heart's action after the attack, such as exertion, which caused the first.

Homœopathic treatment.

Aconite.—Palpitation of the heart and great anguish; feverish heat, particularly in the face; rapid beating of the heart while the pulse is slow; stitches and oppressive acting in the region of the heart, as if from a heavy load; the patient cannot breathe well in an erect position.

Belladonna.—Palpitation of the heart with irregular pulse; great anguish about the heart; oppression of the chest. May be given after aconite and before lachesis.

Spigelia.—Violent beating of the heart, with a sense of suffocation, and spasms of the chest, increased by sitting, and bending the chest forward. May be given in alternation with *pulsatilla*.

Pulsatilla.—Palpitation of the heart and great anguish, dimness of sight, and difficulty of breathing, particularly when lying on the left side, anxiety and burning pressure in the heart.

Bryonia.—Breathing difficult on account of stitches in the chest, with palpitation of the heart, and violent oppression. May be given after aconite when acute rheumatism of the limbs has been transferred to the heart.

Arsenicum.—Violent beating of the heart with great anguish and restlessness; great heat and burning of the chest with cold limbs; in such a case give in alternation with *veratrum*.

Arnica.—Stitches in the heart from the left to the right side, with fainting fits; quivering of the heart with pain; as if it was squeezed together.

Lachesis.—Irregularity of the beating of the heart; great anguish about the heart with heaviness on the chest; great weakness.

Administration of remedies.

Dissolve twelve (12) globules of the selected remedy in

twelve (12) teaspoonfuls of water, and give a teaspoonful every half an hour or hour until relief is obtained. If the remedy does not relieve in one or two hours select another, and give in the same manner. A mustard poultice may be applied to the breast, and the feet placed in hot water, and the patient well covered.

Mustard plasters applied to the chest and between the shoulders. The greatest quiet must be observed.

DROPSY.

Dropsy is an abnormal collection of watery fluid in the areolar tissue, or in the serous cavities of the body. It is not a disease *per se*, but a symptom, yet one, obvious and prominent, comprising often apparently the whole complaint. It may be external or confined to internal parts. It may be sudden or gradual in its developement. We will now consider some of its forms.

ABNORMAL DROPSY (*ascites*).

The term ascites is now confined to dropsy of the peritoneum (the coating of the bowels). Although cysts within the abdomen, often produce great distension, and imitate ascites in some of its most pronounced symptoms; yet they constitute a different affection, having a different origin and requiring a different treatment, when connected with the ovaries they are called ovarian dropsy, and will be spoken of under that head.

The water accumulates first at the lower part of the belly, which gradually enlarges, and the swelling goes on increasing until the entire abdomen becomes very prominent, tense and shining. The swelling may be observed to gravitate towards the side on which the patient leans; and if the left hand be placed on one side of the belly, and a smart tap be given to the opposite side with the right hand, the water may be felt fluctuating. There are in most cases considerable thirst, loss of appetite, and dry cough, and the urine is scanty and of a dark brown color. When the water has accumulated to

a considerable extent, the breathing is oppressed, and the face and parts of the body not consecutively infiltrated become much emaciated.

In some cases, the feet and ankles are swollen before any change is observed in the size of the belly ; but in general the lower extremities are not affected until the abdominal dropsy has existed some time,

Dropsy, as we have already mentioned, is almost invariably a symptom of organic disorder, and, therefore, in order to direct the treatment on scientific principles, it is of the utmost importance that the organ affected should be known. In general, there are well-marked symptoms of visceral obstruction, before dropsy makes its appearance, and, after it is considerably developed, the general appearance of the patient allows a sufficiently accurate opinion to be formed with regard to the organ which has given rise to effusion. When the belly is much enlarged, and the lower extremities swollen, while the arms and upper parts of the body are emaciated, the face being at the same time thin, sharp, and of a sallow dingy color, it may be inferred that the liver is diseased, or at all events, that the cause of dropsy is situated in the belly ; on the other hand when the face is bloated, the lips swollen, so that the mouth remains partially open, and the eyes appear as if protruding from their orbits, there is every reason to suppose that the obstruction is in the chest, and that, most probably, the heart is diseased ; and this opinion will be strengthened, if it be ascertained that the dropsical swelling commenced at the feet and ankles, and subsequently extended to the belly. The reverse of this takes place when dropsy arises from inflammation of the peritoneum, or from obstruction of the liver, or of any other abdominal organ ; here the swelling of the lower extremities of the body is always a consecutive symptom.

Diagnosis.

The only conditions which is likely to be mistaken for ascites is pregnancy. From this state it may be distinguished

by the fluctuation ; the uniformity of the tumor ; the lateral pressure and distension of the abdomen on lying on the back ; the oppression of breathing on lying down, so as to raise the pelvis and abdomen higher than the chest ; the thirst ; the paucity of the urine ; the dryness of the skin ; which characterize effusion into the abdomen. And, on the other hand, the absence of the peculiar symptoms of pregnancy assists us in forming a correct diagnosis.

When the dropsical accumulation becomes very great, much uneasiness and general disturbance in the system arise from the mechanical irritation which it causes by its pressure on the organs of the abdomen. Respiration becomes short and anxious ; the stomach will admit of but small quantities of drink or food ; the fibres of the abdominal muscles yield, and the whole abdomen becomes sore and tender to the touch, and a dry and short cough generally comes on in the advanced stage of the disease.

Treatment.

A cathartic of fifteen (15) grains of jalap, thirty (30) grains of cream of tartar, half a ($\frac{1}{2}$) grain of podophyllin for a dose and repeat every six hours, if the patient is able to stand it, if not, once a day or three times a week. Elaterium, in one quarter ($\frac{1}{4}$) grain doses, thrice daily, has been pronounced by Bartholow as the prince of remedies in this form of dropsy. For a diuretic use, ten (10) grains of nitrate of potassa, three times a day. For a tonic, tincture of Peruvian bark or tincture of iron. The very best nutritious diet must be used, but that which is easy of digestion ; fluids should be taken very sparingly. Thirst may be quenched by using little lumps of ice, or by taking cold water in small quantities. Moderate exercise must be taken, and every means employed to promote the general health. Sponge baths should be taken daily, The spirit vapor bath—and Dover's powders at night. When the water begins to recede from the abdomen, a bandage must be applied around it, loose at first, but gradually made tighter, so as to support

the abdomen; this must be worn for sometime after the water has all disappeared.

It has been found that if the bandage be made of flannel and previously soaked in a strong solution of salt, and dried again before it is applied—that it is of great advantage. The power of such a bandage would be still more enhanced, by imbuing it with a strong infusion by squills or other diuretics.

It is often the case that after the water has passed out, and in fact, before the abdomen seems tender; when this is the case, a liniment of oil of origanum, two (2) drachms, aqua ammonia, four (4) drachms, alcohol, six (6) drachms, and sweet oil, two (2) ounces. Mix. Should be applied once or twice a day, for several weeks, over the whole abdomen. After the water has been removed from the chest, and the cathartics stopped, the bowels may be kept open by the use of the syringe.

Homœopathic treatment

Apis Mellifica has performed wonderful cures, and is valuable when the following symptoms are present: a sense of fullness, or suffocation in the chest; difficult breathing; pain and tenderness of the abdomen.

Arsenic.—Countenance pale and waxen; cheeks, lips, and eyelids bluish and puffy; mouth and tongue dry; urine scanty, dark and turbid, or slimy; great prostration; fainting; palpitation of the heart; difficult breathing; loss of appetite; heaviness and stiffness of the limbs and body.

Digitalis.—Especially when the dropsy is caused by disease of the heart; also when there is paleness of the face; swelling of the eyelids; irregularity of the bowels; sharp stitches in the region of the heart.

Apocynum.—This is an exceedingly valuable remedy in all forms of dropsy.

Other remedies are asparagus, cantharide, mercurius, cannabis, indica, china.

Administration of remedies

Give a dose of selected remedy every three or four hours, in urgent cases ; but in chronic cases, once or twice a day. If the globules are used, give six (6) at one dose. If the solution is used, dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and give a teaspoonful for a dose.

ANASARCA, OR GENERAL DROPSY.

General dropsy is either acute or passive, and consists in the effusion of serum, or the watery part of the blood, into the cellular substance situated beneath the skin.

Passive general dropsy may arise from any of the debilitating causes above mentioned, but occurs most frequently from disease of the heart or some internal organ. Under these circumstances, the fluid is thrown out slowly ; the face, or the feet and the ancles, are swollen at night ; and the parts pit on pressure, which is a characteristic symptom of the affection. At the commencement of the disease, the swelling disappears in the morning ; but after some time becomes more permanent, and gradually ascends higher until the whole body is affected. While the dropsy is gradually increasing, the face and eyelids become sallow, swollen and bloated ; the breathing oppressed ; and the pulse frequent, weak, and sometimes intermitting. There is considerable thirst, the urine is scanty and high-colored, the appetite greatly diminished, the bowels are constipated and towards the termination of the disease, there is great debility, and the mental faculties are much impaired.

Acute general dropsy commonly arises from some cause capable of suddenly checking perspiration, or it comes on during convalescence from scarlet fever or measles. This form of dropsy is decidedly inflammatory, and may result from exposure to cold, wet, or any of the ordinary causes of the inflammation. It is ushered in by shivering, full or hard pulse, headache, thirst, and heat of surface. These symptoms, in the course of twenty-four hours, are followed by

dropsical swelling, which generally appears first in the face, and shortly afterwards extends to the trunk and extremities of the body. In most cases, there are well marked inflammatory symptoms accompanied with head-ache, a sensation of tightness about the chest, and difficulty of breathing; but sometimes there is very little general excitement, and the pulse may not arise above the natural standard dropsy, attended with inflammatory symptoms more or less acute frequently follows scarlet fever, both in children and adults; and the one disease may supervene upon the other in the course of a few days or weeks. Acute general dropsy is usually associated with inflammation of some internal organ; but cases are occasionally met with in which no local disorder can be traced.

Treatment.

No remedy can be given with propriety without previously ascertaining whether or not it co-exists, or is kept up by disease of an internal organ. The passive or chronic form of the affection is very seldom independent of organic disease; but cases do occasionally occur in which it arises from living on poor or unwholesome food, then the treatment ought to consist in a more generous diet. When it is connected with chlorosis, (green sickness), ten (10) drops of the tincture of steel are to be taken three times a day, in a little water.

In all cases of dropsy from the above or other directly debilitating causes, not depending on organic disease, such as loss of blood, weakness induced by ague, protracted fevers, dysentery, and other diseases, a nutritious diet, tonics, and mild diuretics, should be given. A preparation of iron, as above may be given; a grain of quinine, three times daily.

The general health must be well looked after; feeding, exercise and bathing must be attended to carefully and perseveringly.

Bandaging the limbs in some cases proves of the greatest

advantage by preventing inflammation and suppuration while at the same time it promotes absorption.

Small punctures may often be made with advantage in cases of great distention. The quantity of liquid which escapes even from a few of these minute wounds is sometimes astonishing, and the relief to the patient indescribable. After puncturing, the limbs should be frequently bathed with an infusion of mullein leaves and oak bark, in order to prevent inflammation and ulceration from following, which sometimes become troublesome.

Homœopathic treatment.

Aconite is of service at the outset of treatment, when the feverish excitement is very predominant, but specially required in sudden attacks of acute or inflammatory dropsy, in persons of full habit of body, and vigorous frames, and should be given during the continuance of any fever symptoms.

A dose every two hours, preceding promptly with other treatment when the heat of the skin and agitation of the pulse becomes moderate.

Arsenicum.—Most valuable in dropsy, whether acute or chronic, and the utmost service in dropsy of the cellular tissue, as the result of severe and mismanaged acute and inflammatory diseases; or in chronic and protracted cases, gradually induced in shattered constitutions; or those which depend upon organic diseases of the heart or any other important organ.

A dose, for the acute symptoms every half an hour, or in very urgent cases in five, ten, fifteen or twenty minutes until reaction takes place; subsequently extend the intervals to three, six or even twelve hours, according to the greater or less urgency of the case. In chronic cases, night and morning for a week; then pause six days after which resume the course.

China is a useful remedy in cases dependent upon an enforced condition. A dose against the paroxysms every three hours, until decided amelioration or change.

Phosphorus is also useful in general dropsy, or in that accompanying inflammation of the lungs. A dose every two hours, and subsequently every six.

Mercurius is occasionally of much service in some chronic cases of dropsy, dependent upon organic disease of the liver or spleen.

A dose, for the acute symptoms, every three hours, for chronic cases, night and morning.

Crotalus.—General dropsy, swelling of the whole body; oppression of the chest, not permitting a recumbent position, and dropsy of the chest in old people. A dose every six or twelve hours.

Sulphur is of pre-eminent service in the cure, especially in scrofulous constitutions, or when dropsy accompanies inflammatory disease, or when other medicines are limited in their efficacy. If as an intermediate remedy—a dose the first thing in the morning, repeat the dose after twenty-four hours; then pause four days and return to such treatment, as may appear appropriate. For consecutive treatment, every morning, the first thing, then again after ten days and again after a week.

In the chronic forms, warm clothing is indispensable, and a high and dry residence, Vapor baths, and tepid packing, are also of service to promote perspiration. Cold water is often the most grateful drink, and may be allowed if desired. Medical rubbing and oxygen inhalation are frequently of the greatest efficacy. Tapping with the lancet is sometimes necessary for temporary relief.

THE EYE.

AND ITS AFFECTIONS.

A much greater knowledge of the eye and its diseases

has been diffused during the past few years among medical men, than ever before.

Our sight, like our hearing, is used with so little consciousness, that we do not realize its importance and value until it is impaired or lost. With regard to the eyes, the old proverb especially holds good, that an ounce of preventive is worth a pound of cure. We will, therefore, try and point out what preventives every one can employ, and what cures, every one can avail themselves of. To do this, however, you must learn a little anatomy and a little physiology.

Suspended in the bony cavities either side of the nose are the eyeballs, moving freely around their centre of motion. Make a sudden movement of your finger towards them, and down close the lids for protection. One circular muscle around the lids does this, and another raises the upper lid to disclose the globe again to our view. For further protection from dust, dirt, and insects, are the lashes fringing the edges of the lids. Unlucky is the person with whom these do not grow naturally, but turn in and rub on the eyeball, and still more unlucky will they finally be if they continue to pluck out the offending hairs, instead of submitting to the slight surgical operation which eradicates them permanently or replaces them in proper position.

Covering the inner sides of the lids and the front of the eyeball, is a sack-like, delicate, and very vascular membrane, which the anatomists call the conjunctiva. Lay your fingers on the cheek, and draw the lower lid gently down while the person looks as much upwards as possible, and we shall see about the whole extent of the lower portion of the conjunctiva, and thus if any foreign substance is there it will readily be detected and easily wiped away with a fold of a soft rag or handkerchief. Both lids have a piece of cartilage in them to stiffen them, like pasteboard, and keep them fitting close to the eyeball. The upper portion of this conjunctival sack can only be seen by turning over the upper lid. The way to do this is to let the person look down with the eyes closed. Taking hold of the lashes with one hand, and applying a pen-

cil, or some small, round, smooth object, over the lid above the globe, we lift the lashes out and up, warning the person to still keep looking down. The lid will suddenly turn over with a little spring from the bending of the cartilage. In this way nearly the whole of the conjunctival sac will be exposed, and any foreign body wiped away as above described.

If no friend or oculist is by to do this, take hold of the lashes of the upper lid, and draw it forwards and downwards over the lower one, blowing the nose violently with the other hand at the same time. It is probably not very generally known that by immediately pressing the finger against the tear passage at the inner corner of the eye, and keeping the finger there for about a minute, the foreign substance will in most instances disappear at once. Do not rub the eyes before practicing this method, as if the eye is irritated or inflamed, it is extremely difficult to remove anything from that extremely delicate organ.

Stowed away behind the eyeball, just under the outer and upper edge of the bony orbit, is a gland which secretes the tears, from which they flow over the globe, and keep it washed, the act of winking, rubbing it clear of secretion. The eye would not be dry if this gland was removed, for the conjunctiva secretes a certain amount of tears, only the person could not then cry.

What becomes of the tears?

A little row of glands are situated in the edges of the lids, which secrete a sort of oil and wax, and these keep the lashes soft, and form a wall to prevent the tears flowing over. Thus the fluid runs along to the inner angle, where the lids do not meet closely, but have a round space between them. Now draw the upper or lower lid a little away from the globe, and look sharply at a little prominence near the inner angle of the lids, and you will notice a minute opening, which is the entrance to the delicate tubes leading into a sac close to the nose, and out of this opens a tube through which all the tears finally reach the nose. If any of these tubes or passages are closed, the tears must, of course, run over on to the

cheek, causing a "watery eye." The longer this lasts, the longer will the best skill of the oculist be called upon to remedy it, and the longer will the patient require to exercise both patience and perseverance. Modern surgery has, however, fortunately done much to abbreviate this time. The little glands in the edges of the lids, which secrete this wax you may see by drawing down the lower lid. They look like little yellow streaks. Both these and the glands which secrete the oil, and keep the lashes soft, are liable to inflame, especially after measles in children. The lids are red and sore and swollen. Without seeking advice, it is not well to apply to them anything more than sweet oil, or perfectly fresh butter without salt. If the complaint lasts any length of time the lashes are liable to be lost, or to grow wrong, which may produce no end of trouble, and even destroy the sight of the eye. The surgeon's best skill is then required for the patient.

You have now learned something of the natural protections of the eyeball. With the lids wide open we can see about one-half of the globe, which, as you notice, looks like a white marble with a watch-glass set in the front. The "white of the eye," is the strong, fibrous, enveloping coat which gives the eyeball its shape and protects its contents. The anterior sixth of this coat is perfectly transparent, and protects in a more convex form. It is called the *cornea*, and was formerly thought to be set in the other portion as your watch glasses are set in their cases. The microscope, however, has shown us a still more beautiful arrangement, namely, that the same fibre which, as a part of the *sclerotic*, or white coat, is white and glistening, becomes perfectly transparent in the cornea. The idea that the clear part of the eye was literally a portion of the white of the eye, seemed so impossible, that the above notion of the watch glass was naturally suggested ; till the microscope showed, as is often the case, that truth is stranger than fiction. The cornea is much thicker and tougher than you would imagine. It measures ($\frac{1}{25}$) of an inch in thickness being rather more than

the sclerotic. In the living animal it is one of the most transparent objects in nature.

Now you have learned to remove any foreign substance, which is in the conjunctival sac, above or below. This membrane called the conjunctiva, covers all the eyeball we can see, up to the clear part of the eye, where it stops, and only a most delicate layer runs over the cornea, in order that it may remain perfectly transparent. Any foreign substance does not long remain on the conjunctiva covering the globe, but is soon rubbed off on to the lids, and will there be found. You see the necessity of the cornea being clear, to let in the light. Substances which blow into the eye, and adhere to the cornea, do not generally penetrate its tissue, and are, therefore, pretty readily removed. No hard substance should be used to do this with, as considerable damage may be done to the eye, and great pain caused.

Take a strip of paper not stiffer than ordinary writing paper, about a quarter of an inch wide, and roll it up as if you were going to make a candle-lighter. Look at the lower end, and you see it comes to a point. With this point now you may safely attempt to remove any foreign substance from the cornea. The tears which will flow soften the paper, and prevent injury to the delicate covering membrane of the cornea. But it is very different with foreign substances flying into the eye with force, such as pieces of metal, particles of emery or stone, or thorns from plants, etc. These penetrate the cornea, and hold in as fast as a nail driven in a pine board. If it simply adheres or just sticks into the cornea, a magnet will often remove a piece of iron when touched to it. A workman with a jack-knife trying to remove a particle of steel imbedded in the cornea, is like another trying to remove a headless tack from a board with a spade; the difference being that another board is more readily obtained than another cornea. Many a day's work is lost, and often even the sight of an eye, from the ignorant neglecting to apply immediately to a surgeon, who alone can safely remove a foreign body imbedded in the cornea. Every hour lost under

such circumstances is future trouble as well as present pain. A single fold of cotton or linen, wet with cold water and laid over the eye, is all that is needed until surgical help can be obtained. Let us here emphatically warn you never to put an "eyestone" in the eye to remove a foreign substance, notwithstanding you may find them for sale in some of our so-called respectable apothecary shops.

Now look through the watch-glass of the eye, and you will see that which gives the eye its color; namely, the *iris* or rainbow. Hold your hand over a person's eyes while he closes them, and then remove it suddenly when he opens them, and you will see the hole through the iris, called the pupil, become suddenly smaller, or contracting. The iris is a vascular and muscular membrane, placed exactly like an optical diaphragm behind the cornea, attached at its circumference, where the sclerotic joins the cornea, and bathed by the aqueous humor which, almost like pure water, fills the space between it and the cornea. The circular muscular fibres of the iris around the edge of the pupil, by contracting, reduce the aperture upon the stimulus of light penetrating the eye, and the radiating muscular fibres dilate it again when this stimulus is removed. The pupil is therefore larger in the dark than in the light. The use of the iris is probably entirely physical to regulate the amount of light and cut off all rays entering too obliquely. The posterior surface of the iris is covered with a black pigment. The anterior surface reflects light and is iridescent. When there is but little pigment among the fibres, the posterior thick layer reflects to us a blue or gray, and when a considerable mass of pigment is scattered through the texture, then we have a brown or dark eye. The action of the iris, in reducing or enlarging the pupil, is not under the control of the will. In childhood the pupil is large, and gives expression to the eye; in old age it is small, and the eye "lacks lustre," as we say. There is a plant the extract from which dropped into the eye, or applied to the skin in the neighbourhood, or taken internally, causes the pupil to enlarge, and gives sparkle to the eye, in

consequence of which it received the Italian name of "belladonna," or lovely lady. Simply applied to the eye it is not dangerous, but it is a very powerful poison when taken into the system, and many an accident has happened from it.

Its alkaloid is called sulphate of atropia. Atropia is, however, one of the most important helps the oculist has to avail himself of, as we shall see further on. The pupil is, as we have said, a hole in the iris, and looks black,—just as a small hole in a closed box looks black. Atrophine makes this hole larger, for the surgeon to look into the eyeball.

For further study of the anatomy of the eye, the reader is referred to the chapter and plates on the eye, in Part I.

The space between the iris and the cornea, is filled with the aqueous humor—almost pure water. The iris thus floats, as it were, in this humor, and by dilating or contracting makes the pupil, the hole through it, larger or smaller, according to the amount of light the eye is exposed to.

The pupillary edge of the iris lies against the anterior surface of the crystalline lens—to be described presently. If we cut an eye in two, and turn over the front half, we shall see surrounding this lens a radiated disk composed of from sixty to eighty minute folds, thickly covered with a black pigment, reminding us of the circular row of black seeds in some fruits or vegetable. These are called the ciliary processes, and are highly vascular. They may be considered as a continuation of the black choroid coat lining the white sclerotic. Their free ends in front come up to, but do not touch, the edge of the crystalline lens.

Let us now examine this, the most important dioptical ocular apparatus, the crystalline lens. You see it lies just behind the iris, the edge of the pupil being in contact with it. The human lens is double convex transparent body, about one-third of an inch in diameter, and one-fifth of an inch in thickness, much more convex on its posterior than its anterior surface. It is enclosed within a capsule of perfectly transparent material, which, although dense, allows fluid to pass through it. The proper structure of the lense itself varies

with age,—in the infant it is soft as jelly, and in old age as hard as wax. With this increasing hardening of age there is a gradual change of the shape of the lens, it becomes flatter, and its two surfaces alter their relative curve. The lens increases in density as we go towards its centre. It is composed of fibres arranged side by side in concentric layers, and running from one pole to the other. These fibres are flattened, ribbon-like filaments, with interlocking serrations at their sides. The complexity of the arrangement of the fibres seems to be greatest in man, and less as we descend in animal scale. When this crystalline lens is opaque, it is called cataract, and the person cannot then see, because the light cannot pass through it to the inside of the eye. In children and young people, cataract is often soft, like sago or rice, and then when the oculist pricks the capsule, which holds it, the aqueous humor runs in, and absorbs or melts it and the patient will again gradually have sight. In old people, cataract is hard, like wax, and the only safe way the the oculist has of removing it is to cut a hole in the eyeball and take it out entire. Modern surgery has been quite successful in accomplishing this very delicate operation. People often mistake and speak of an opaque spot on the clear part of the eye, or cornea, but cataract, as you see, is a very different thing. Most all of the quackeye-waters sold in the apothecaries' shops under one doctor's name or another's, contain sugar of lead. Now if the surface of the cornea is rough and abraded, as it is very apt to be in many diseases of the eye, a solution of sugar of lead put into the eye will finally make an opaque deposit of lead in the cornea, so that the unfortunate purchaser of those quack eyewaters is apt to be permanently more or less blind; the removal of this deposit by the oculist being difficult, and often impossible.

The crystalline lens has been called one of the humors of the eye. Behind and in contact with it is the humor, called the vitreous, which may be described as a transparent jelly-like mass filling the interior of the eye. Its density is hardly greater than water, and is composed in 98.40 parts of it.

Anatomists and physiologists have thus far failed to make evident its structure. It is, in natural condition sufficiently consistent to retain the impression of the lens, and the ciliary processes, when they are removed from it; some of the black pigment of the latter generally adheres to it. It is surrounded and enclosed by a delicate perfectly transparent glass-like membrane called the hyaloid, and this latter becomes of interest to us, as we shall now see. It is also called the limiting membrane, separating the retina from the vitreous. Where it comes round up to the ciliary processes, it divides into two layers, the posterior turns in and forms the concave anterior surface of the vitreous humor on which lies the crystalline lens, the anterior layer runs forward over the ciliary processes and passes to the anterior capsule of the lens, into which it is inserted. Cutting open a fresh eye, and looking into the front half, it will be seen as a zone around the lens. An old anatomist named Zinn discovered it, and it bore his name. The purpose of this structure being now known and understood, it has received a name which indicates its anatomical relation to the other parts, namely, suspensory ligament of the lens; by it the lens is held in its position.

Now let us here pause a minute and consider the aggregate of what has been so far described. The limpid aqueous humor contained within the perfectly transparent convex cornea, gives us a plano-convex lens. The iris lined with black pigment, and pierced with an opening, capable of alteration in size, represents an optical diaphragm. The crystalline, a double convex lens of greater density than the aqueous, behind the iris, completes the necessary optical apparatus to form a camera obscura, which the eye in reality is. A camera obscura is, an apparatus formed of a dark chamber, having an aperture in one of its walls, where is fitted a convex lens, and within the chamber is some appropriate surface on which will be painted, in inverted position, a perfect little picture of all outside objects within a certain range. Optically we may regard the cornea, aqueous humor, and lens, as one double

convex lens. But where is the apparatus or membrane corresponding to the recipient surface of the camera obscura ? It is the retina, the true sentient portion of the organ of vision. It is called the third coat, and lies in contact with the limiting or hyaloid membrane we described externally being against the pigment layer covering the dark choroid. It lines the interior of the globe up to the posterior end of the ciliary processes. In natural condition it is almost perfectly transparent, and will therefore allow the light coming into the pupil to pass through it to the pigment layer.

The optic nerve, as it comes from the brain through the cranium into the orbit, and so to the eyeball, is a compact bundle of an innumerable number of nerve fibres. The mass of them together, where they enter the eyeball, form a round spot, called the optic papilla ; from here the fibres pass off colorless. on the inner surface of the retina. More of them go towards the central point of the back of the eye where the line strikes the retina, and where vision is best, and fewer towards the peripheric parts, as far forwards as the retina extends.

No greater mistake has been made than that of regarding the retina as a sort of expansion or spreading out of the optic nerve. In reality the fibres of this nerve are merely the conductors from the retina as a sort of expansion or spreading out of the fibres of the optic nerve. In reality the fibres of this nerve are merely the conductors from the retina to the brain of certain sensations, as the telegraph wires transmit thought. The optic nerve fibres do not receive the impression of light but simply transmit it to the brain. If they did, then their aggregate, the optic papilla, where they pass out from the eye, would be the most sentient part ; but in reality this portion is insensible to light, and is the cause of the blind spot. To prove this, close your hands with thumbs up ; hold the two thumb nails, side by side at arm's length, shut your left eye, and look steadily at your left thumb nail with your right eye ; now keeping your eye fixed, move away the right thumb nail from the other, and when the dis-

tance between the two is about six or seven inches, the right thumb nail will suddenly disappear to appear again when moved a little further. The reason of this is that the picture of the thumb nails then falls on the optic nerve, where it enters the eyeball, and where, of course there is no retina, only optic nerve fibres bound up together like a skein of fine silk.

Stand with your eyes about ten inches from a pane of glass that has dust on it, and look out of the window at distant objects, you will, of course, see everything quite plainly. Now keeping your head in the same position, look at the pane of glass. You will probably feel a sensation of effort in the eyes ; and the nearer you bring your face to the glass the greater will be this feeling, till finally, when too close, they all "blur." Now look at the landscape again, and you will find there will be an appreciable time before objects look clear. When you use your opera-glass, you find you have to screw it one way or the other, according as you are looking at near or distant objects. The eye has to be changed in the same way. Take a strong magnifying glass in one hand, and a white card in the other ; stand a little way from the window, and let the light fall through the glass on to the card, and when you have got it at the right distance you will see a bright little picture of the window sashes and the objects outside.

This picture will be upside down ; and moving the glass a very little backwards or forwards, makes the picture as if painted on the retina in the human eye, as we said when comparing it with a camera obscura.

This adaptation, or accommodation, as it is called, we compared to the screw on an opera glass which adjusts the focus to the distance of the object we are looking at. The accommodation we showed was accomplished by the lens changing its shape, and this it does from its own elasticity, when the ciliary muscle, by contracting, slackens up the suspensory ligament of the lens. We also saw that the eye had the power of gradual adjustment, precisely as we can turn

the screw of the opera glass, or push in or out the tube of the spy glass or microscope. The use of the eyes, therefore, to see near objects, in reading for instance, is a muscular effort, and consequently subject to the general laws which govern muscular activity. This at once explains to you what the eye "feeling tired" means. You can hold out at arm's length a half-pound weight without fatigue for a certain length of time, but beyond a certain length of time it is impossible. Exactly the same with the use of the eyes, in reading, for instance, the muscular effort of accommodation is experienced almost without sensation, till pushed beyond its power, when the ciliary muscle suddenly ceases to act, and the lens to be changed in shape, the consequence of which is, that the letters run together, or are blurred, because the picture on the retina is not sharply defined, in other words out of focus. The muscular effort then to adjust our eyes, is accompanied with fatigue, and if pushed further, with pain, we are forced to stop and rest. Now, although man's most complete bodily development is at about 30 years of age, this muscular power of adjustment or accommodation is greatest in childhood, at about 10 years of age, and becomes gradually less with advancing years, not, perhaps so much from want of power in the ciliary muscle as to the lens becoming less elastic, and this not so readily or perfectly assuming a more convex shape when the pressure on it by the ligament is relaxed. We know that in infancy, the lens is almost like jelly, and in old age as hard as wax. This gradual loss of the power of accommodation, is not naturally noticed until it is sufficient to affect our ordinary occupations, such as reading, writing, and other fine work; this it does generally somewhere between 40 and 45 years of age. Then we see our friends holding the newspaper further off, turning their backs to the window to get a brighter reflexion from the page, etc. After the fatigue of the day the evening paper cannot be read with ease, as before, the letters run together, and the eyes are tired and painful. After a few minutes' rest the paper can be read, but again soon blurs. This is the commencement

of "old sight," which does not come suddenly, as often supposed, but is only noticed when it arrives at that degree which affects our ordinary occupations. This loss of accommodation goes gradually on until we cannot see any near objects, while the power for distant vision remains as in childhood, or but little impaired, because the rays from distant objects are parallel, and the eye focuses them on the retina without the necessity of accommodation.

When letters begin to blur in reading, and our eyes become fatigued, we need spectacles. The convex glass converges a little the too diverging rays, and then the eye can focus them on its retina. As the power of accommodation is gradually lost with increasing age, the eye will need, from time to time, a stronger and stronger glass. And here I would warn you against choosing your own glasses, or having them selected for you by a travelling spectacle peddler, or village clockmaker, or jeweller. At present the community have not learned to make any distinction between oculist and optician. The first is the one who, like physician, can by his tests find out what glass, or whether any is required, whilst the optician, like the apothecary, puts the glass ordered in the frames, and following the instructions of the oculist as to fitting these to the face. An honest optician would no more think of changing the glass ordered, than an apothecary the medicine in the prescription. The oculist's advice, moreover, will save his patient buying more than one pair of spectacles.

There is more danger from not wearing glasses than from using them too strong. You should be able to read this print at 14 inches from the eye, and if you must hold it off further, or push your glasses down on the nose, then they are not strong enough for you. You probably have heard or know of some very old people putting away their spectacles and reading again without them. The reason is, that the pupil in old age becomes so small that the rays of light which come into it are practically parallel, and these the eye will focus on its retina without accommodation, or glass in front

of it. Besides this there is a change which takes place in the lens, causing it to become more swollen or convex, which is the forerunner of cataract; this will also have the effect of the person not requiring or being able to use his glasses as previously, for it is just what takes place during accommodation. There is nothing miraculous or remarkable in old persons not using glasses.

We have considered the refraction and accommodation of the normal eye, and its natural change from advancing years.

NEAR SIGHT (*Myopia*).

The front part of the eye, lens, etc., is the same as a normal eye. But as the back part of the eye is elongated, giving the eyeball an egg shape. Hence the parallel rays of light from distant objects coming to a focus in front of the retina. Then the rays cross and reach the retina so as to give a confused picture. Rays of light coming from a near object are diverging, and these the near sighted eye can focus on its retina, the longer or more egg shaped the eye, the more short sighted it is, and the nearer must objects be brought to be distinctly seen. Now if we can make the parallel rays of light from distant objects diverging before they come to the eye, then they also will be focussed on the retina. This we can do by a concave glass which spreads them out. The glass renders it capable of seeing distant objects, and its own power of accommodation, just as in the normal eye enables it to adapt itself to near objects. There are some popular delusions and mistakes to be noticed here, in reference to near sightedness or *myopia*, as oculists call it. In the first place a shortsighted person is congratulated that he will have good eyes in old age and not need to wear glasses. This is a mistake, they will always have to wear glasses to see distinctly in the distance; if, however, they have been accustomed to wear spectacles, they will, instinctively, as age comes on, push them up on to the forehead when eating their dinner or perhaps, reading, etc. Another

fallacy is that a near-sighted eye is always a strong one. There are many near-sighted persons, born so, who go through life wearing the appropriate glasses, and using their eyes as freely, and with as little concern or consequence as any other person. This may be called fixed *myopia*, and is hereditary, —the girls generally following the mother, and the boys the father, as respects their sight. Where, however, near-sightedness comes on in youth and increases, or increases from birth, then it is a very serious trouble, and often leads to total blindness. The use of the eyes for near objects increases near-sightedness, which may be due to the bulging out of the back part of the eyeball. Bending over the desk or piano is very bad for near-sighted people. What I said in reference to the selection of spectacles, applies still more strongly here. The striving for a higher and higher standard of education is the cause of the increasing number of near-sighted people in our communities. It is difficult to lay down any definite rule as to the use of spectacles. Every person whose eyes are not normal had better consult some scientific oculist.

People only slightly near-sighted may go without glasses, taking care to hold the book up, and not bend over it, or the desk. People considerably near-sighted had better wear appropriate glasses for convenience and safety. Those very near-sighted, especially if increasing, should never wear glasses except ordered by a scientific oculist. They never should select them, themselves. It will be better to let the physician consulted choose the profession or occupation for a very near-sighted person, than to have the eyes break down, or partial blindness come on after a profession is learned.

OVER-SIGHT (*Hypermetropia*).

A condition of the eye exactly the reverse of what we have just described. It is a source of much evil when not understood, and corrected by the proper spectacles. Such an eye is so from birth, and does not increase with old age, but is subject to the same change as a normal eye undergoes

with years. This eye is the reverse of the *myopic* eye; it is flatter even than the normal eye. Hence, unlike the normal one, it cannot, when quiet even focus the parallel rays from distant objects on the retina, and they fall behind it. They must be made converging in order to focus on the retina, and without a glass this can only be done by changing the shape by accommodating. If the eye has to accommodate for distant objects, it will of course have to do much more so for near objects. The muscular effort of accommodation will soon fail and give rise to what is known as "weak eyes." The convex glass placed in front of the eyes conveys the parallel rays somewhat, so that the eye can then focus them on its retina, without accommodation of the lens, which can be reserved to focus the diverging rays from near objects. These convex glasses, therefore, as you see, are immense helps to the over-sighted eye, rendering it, thereby, like a normal one, and relieving it from fatigue and over work. You have learned now that it may be just as necessary for an oversighted young person, perhaps even a child at six years of age, to wear convex glasses, as for a near-sighted person to wear a concave glasses. From general ignorance and prejudice the unfortunate children who are over-sighted are not allowed to wear spectacles, because they are found to be like "grandpas." But you have learned that although old sight, and over-sight need convex glasses, they are not the same condition of the eye.

SQUINTING (*Strabismus*),

A very important truth modern science has taught us is, that squinting or turning the eyes inwards, is due, perhaps in ninety cases out of the hundred, to over-sightedness. Let us explain why. When we look at near objects we turn the eyes in, and at the same time accommodate the crystalline lenses. These two acts are intimately associated. The more we turn the eye in, the more we can accommodate.

Now, if we turn the eyes too far in, we see things double (*binocular vision*). The over-sighted youth must accommod-

ate strongly ; he lets, therefore, one eye turn farther in than the other ; and, to avoid seeing double, suppresses the image, as it is called ; that is, neglects to regard it, and perceives only with the other eye. But the moment this happens the squinting eye begins to lose its power of sight, which may increase till it is quite blind. Test, for yourself, any child who has squinted a time, and you will be surprised to find how poor its sight is in the squinting eye. What can be done for this ? Why, the oculist, by a slight operation can cut the muscle, drawing the eye too far in, and then it turns with its fellow, and sight will wholly or partially return in it.

INDISTINCT VISION (*astigmatism*).

Indistinct vision, can be remedied to peculiar and properly selected glasses. This is caused by the clear part of the eye, the cornea, not having the same curve in all directions, so that the rays of light coming in a horizontal direction, do not come to the same focus as those coming in a perpendicular direction. This difficulty is found quite frequent, there being many people to whom, for example, the upright portion of a cross is not so clear as the horizontal, or the reverse. This impairment of vision can be remedied by glasses ground to meet the irregularity of the cornea ; they are called cylindrical glasses ; and it requires patience, knowledge, and care on the part of the oculist to prescribe them ; but the improvement of sight amply repays the time given by both the afflicted one and the oculist.

Of the class of diseases of the eye, known as inflammatory forms it will be necessary to notice only the most common forms.

STY ON THE EYELID (*Hordeolum*).

This is a small boil which forms on the margin of the eyelids, or on the lids. The matter forms in two or three days and the abscess bursts. A poultice of bread and milk, or linseed meal, wrapped in thin linen cloth, should be applied to the eye until the matter forms. After it has discharged,

on going to bed, for two or three nights, a little diluted nitrate of mercury ointment. Salt and water will sometimes prevent the return of these parts.

Homœopathic treatment.

Pulsatilla.—Is the most important remedy. Give a dose twice a day. If this does not relieve, give mercury, in alternation with hepar sulphur or staphysagria. A dose, two or three times a week, of one of these remedies will sometimes prevent their appearance. *Calcareo carbonica* may be given in the same manner.

FALLING OF THE EYELID, PARALYSIS (*Ptosia*).

This may be caused by exposure to cold air, intoxication, violent mental excitement, blows on the head, exposure to the direct rays of the sun, and tumors within the brain. In this affection the muscles of the eye are generally paralyzed also, so that the eye cannot be moved, but stands perfectly still, or else is turned out towards the temple.

Treatment.

Mercury is sometimes used until the mouth is affected. Warm poultices applied to the eyes will be found beneficial. Rubbing the forehead, temple and eyelid with aromatic spirits of ammonia has a good effect in some cases.

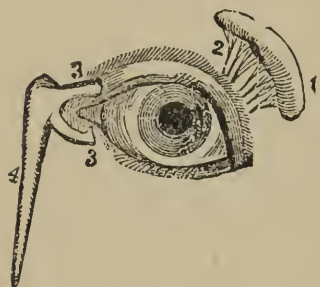
Homœopathic treatment.

The remedies adapted to this complaint are *spigelia*, *belladonna*, *sepia*, *opium*, *cocculus*, *nitric acid*. This complaint should only be treated by a competent physician.

WEEPING, OR WATERY EYE.

This complaint is caused by the obstruction of the lachrymal duct, or the gland in which the tears are created. The patient's attention is first attracted by weakness of the eye, and tears gathering in the inner angle of the eye, the tears being much increased by the cold air. This may be continued

for months or years, and is a source of great annoyance. Abscesses may be formed on the side of the nose, and the bones of the nose may become affected.



1. The lachrymal gland.
2. The ducts by which its secretions are conveyed to the eye.
3. The puncta lachrymalis.
4. The lachrymal duct.

The lachrymal duct is lined with a continuation of the membrane of the nose, and in case of colds, this membrane is liable to become thickened so much, as to fill the duct. When it becomes permanently filled a small all metallic tube may be inserted, and is found to answer the the purpose perfectly.

Treatment.

Fomentations of chamomile tea or poppy leaves sometimes relieve. Bathing the parts with brandy and water, or pure brandy, is beneficial. The diluted nitrate of mercury ointment may be used, in some cases, by inserting a piece the size of a hemp seed in the inside of the lid and rubbing it along the edges.

Homœopathic treatment.

If the watery eyes arise from a general weakness of the organ, euphrasia and spigelia may be given in alternation, every two or three hours, a dose of six (6) globules. The other remedies are belladonna, pulsatilla, calcarea, carbonica, silicea, and sulphur, which may be given in the order named, a dose six (6) globules every day.

INFLAMMATION OF THE EYELID, AND INFLAMMATION OF THE MARGINS OF THE LIDS.

The eyelids may become inflamed from taking cold, and other causes, and frequently the edge of the eyelid will be inflamed without affecting the whole lid.

Treatment.

A teaspoonful of milk with a bit of fresh butter melted in it may be used as a wash for the eyes in the morning when they are glued together, smearing the lids and rubbing then with the fingers gently. Afterwards a piece of soft sponge, wrung out in water, should be held at the eyelids for some minutes, and the eyelids are then opened without pain to the patient. When the lids are open, the matter should be gently removed.

Warm applications of poppy heads or chamomile flowers may be used once or twice a day. Poultices of bread and water with a little fresh butter or olive oil, enclosed in a small bag and laid over the eyelids will be found very useful. Raw potato poultice is one of the best applications, scraping fine and applying freely. Slippery elm applications are also excellent.

Homœopathic treatment.

Aconite.—Where the inflammation and pain are great, and the lids are swollen, hard and red, with heat, together with a sensation of burning; there being also a copious secretion of mucus in the eye and nose.

Belladonna.—If *Aconite* is not sufficient, give this when there is a feeling of burning and itching in the lid, with swollen eyelids which stick together, and bleed freely when opened, and also when the edges are turned to the outside and feel as if paralyzed.

Hepar sulphur.—If there is a sensation of laceration or bruised feeling in the lids on touching them, with sensitiveness to the light; this may be given in alternation with mercury, *aconite* or *belladonna*.

INVERSION OF THE LIDS (*Entropion*).

In this complaint the eyelashes and the margin of the eyelids are moved towards the ball of the eye, and cause great pain and inflammation. When it has existed for a considerable time, the cornea is rendered opaque, prominent

and indurated, or ulceration and even complete loss of vision result. Relaxation of the skin of the eyelids, in consequence of previous chronic inflammation, disease of the meibomian glands, and the cicatrices of ulceration, or wound on the palpebral conjunctiva form the general exciting causes of the disorder.

Treatment.

Removal of the eyelashes will give at least temporary relief. Collodium applied to the outside of the lid is useful. Alum coagulum made as follows, is useful when painted under the eye lid: Take the whites of two eggs, and shake them with fragments of alum to form a coagulum.

Homœopathic treatment.

Pulsatilla is one of the most serviceable medicines in entropion, and is frequently sufficient to effect a cure.

In other cases borax has been found useful.

Chamomilla may also prove efficacious, particularly where the malady has originated in disease of the glands.

EVERSION OF THE LIDS (*ectropion*).

The affection consists in a retraction or eversion of the eyelids, causing their internal surface to turn outwards. There are two species of the disorder; one occasioned by relaxation of the lining of the eyelids, produced by violent inflammation; the other is caused by contractions of the skin covering the eyelids, or of that in the vicinity, induced by the cicatrices of confluent small pox, burns or wounds.

In the former variety, the morbid swelling not only pushes the margins of the eyelids from the ball, but renders them everted; in the latter, the edges are primarily displaced to some distance from the eye, and afterwards turned entirely outwards, along with the whole of the affected eyelid.

In both varieties the eyeball, from being exposed, and submitted to constant irritation, is rendered dry and inflamed, the tears escape over the cheeks, vision is impaired, and

sometimes ulceration or opacity of the cornea supervenes. The conjunctiva, from the same circumstances, becomes thickened freely, and finally indurated.

Treatment.

This must be treated by a surgeon, by skin grafting or by a plastic operation—as the cure can only be attainable by an operation.

CATARRHAL OPHTHALMIA.

This is the most common form of ophthalmia in adults, and proceeds, as its name imports, from the influence of atmospheric vicissitudes, and especially from cold and damp night air. The inflammation in this variety of the disease is confined chiefly to the conjunctiva, and meibomian glands. The patient complains of pain, intolerance of light, and a constant sensation of sand in the eye—which latter feeling may be regarded as a diagnostic symptom of this variety of ophthalmia. In mild cases, the redness of the eye is not very great, and is most conspicuous in the conjunctiva lining the eyelids. The flow of tears is always much increased; and in severe cases, the secretion often becomes opaque and purulent. The headache, in this variety, is seldom very severe, and the febrile excitement is generally mild, and in slight cases altogether wanting.

Treatment.

In the acute stage of the inflammation, benefit will frequently arise from the use of warm soothing fomentations to the eye. A weak infusion of poppy, or simply warm water and milk, may be used for this purpose. Emollient and soothing, warm applications must not, however, be continued too long. When the disease early assumes an almost solely congestive character, a few drops of the vinous tincture of opium, or of solution of zinc, or nitrate of silver, will often afford much relief. The nitrate of silver is decidedly the most effectual local application in this variety of ophthalmia.

Four grains of this article dissolved in an ounce of distilled water, forms a solution of a proper strength ; "a large drop of which is to be applied to the eye by means of a camel-hair pencil. The instant that it touches the eye the salt is decomposed, and the silver precipitated over the conjunctiva.

A compress of linen is to be moistened with tepid water and laid over the closed eyelids. I have used this application with marked benefit in several cases, after the acute stage of the inflammation had in a degree subsided.

In some instances of a general irritable habit of body, the ophthalmia will continue to grow worse under the ordinary measures, "the irritability increasing as the strength fails." In cases of this kind recourse must be had to calomel and opium in combination, or opium with small doses of tart. antimony or ipecacuanha. From three (3) to four (4) grains of Dover's powder, with the sixth ($\frac{1}{6}$) of a grain of calomel, may be given every three or four hours, at the same time that the above exciting applications are made to the eye. Blistering on the back of the neck, particularly after proper depletion, will almost always assist materially in the reduction of the inflammation.

In violent and protracted cases of the disease, the inner surface of the upper eyelid sometimes becomes rough, with a species of hard fungoid elevations, resembling a state of sarcoma of the conjunctiva. Where this occurs it should be lightly touched with lunar caustic or a piece of sulphate of copper—the eyelid being held up from the eyeball for a minute or two after application.

Ophthalmia sometimes assumes a strictly periodical form. The attack in such cases is usually attended with intense suffering ; and under the usual antiphlogistic plan of treatment is apt to continue a very long time. In instances of this form, leeching, blood-letting, and cooling applications never fail to do harm. The appropriate means consist of the same remedies that are employed in intermitting neuralgia, or in the ordinary intermitting fever ; and there can exist but little doubt that all these forms of periodical disease are con-

generic affections. Quinine, bark and arsenic, will, in general, speedily arrest the progress of the present variety of ophthalmia.

Or, instead of lotions, the eyeball may be frequently syringed with a weak solution of alum, (two (2) grains to the ounce,) or vinegar and water; at night the edges of the eyelids are to be smeared with a small portion of citrine ointment, or the following red precipitate ointment.

Red precipitate,	. . . . .	12 grains.
Fresh butter, (butter not salted),	. . . . .	1 ounce.

Reduce the precipitate to a very fine powder, and mix it carefully with the butter.

Sometimes this ointment will produce a great deal of irritation, when the strength should be reduced by adding half an ounce of pure butter, or by diminishing the mercury to eight (8) grains. At the commencement of the disease the bowels should be cleared out by two or three active purges; and, during the treatment, an occasional dose of epsom salts, with the liquor of the acetate of ammonia, should be given, so as to produce two evacuations, at least, every day.

Sulphate of zinc, four (4) grains to an ounce of water, will also sometimes answer. When the pain and headache have passed away, a weak solution of nitrate of silver should be used, as the following:

Water,	. . . . .	2 ounces.
Nitrate of silver,	. . . . .	1 grain.

Mix.

Poultices of poppy leaves may be applied to the eyes when the pain is very severe.

Homœopathic treatment.

Cold water should be frequently applied to the eye, by

means of a few folds of soft linen cloth, laid loosely over the eye and surrounding parts. A weak solution of sulphate of zinc, or nitrate of silver, may be used, in the proportion of one (1) grain to an ounce of distilled rose water.

Aconite.—Lids red and swollen, the ball is very red, pupils dilated, watering of the eyes, cheeks flushed, dread of light, pressing, stinging and burning pains in the eyes; the eyeball feels bruised and pressed into the orbit; the eyes are hot and filled with scalding tears, or very dry with stinging and smarting of the lids, pressure or sharp beating or stinging pains in the head and temples, great mental excitement.

Belladonna.—Redness, swelling and protrusion of the ball of the eye, swelling of the lids, discharge of scalding tears, or dryness of the eyes, flushed cheeks, throbbing of the arteries of the neck and temples; skin hot and dry, sharp pains in the sockets, extending into the brain, burning and smarting in the eyes, heaviness, pressure and throbbing of the ball and eyelids, tearing pain in the eyes from within, outward; dizziness and obstruction of vision, the pains worse on moving the eyes, with sparks and black spots before them.

Euphrasia.—When the pain is in and above the eyes, and in the head, and is also of a very pressing character. It may be used for the same symptoms as belladonna, when belladonna does not relieve.

Nux vomica.—When the eyes are bloodshot, with a sensation as of sand in the eyes, tongue coated, redness of the lids of the eyes, with a stiffness and itching, and a discharge of burning tears, and headache every night.

Pulsatilla.—May be given after aconite has subdued the worst inflammation, but there still remains severe, tearing, stitch-like pains, with great sensitiveness to light.

PURULENT INFLAMMATION OF THE EYES (*Conjunctivitis or ophthalmia*).

Under this head may be included the Egyptian ophthalmia, gonorrhœal ophthalmia and the purulent ophthalmia of new-born children. The disease is essentially the same as

the one which we have just described, differing from it only in being much more severe, and being excited by the applications of some contagious matters to the eye-ball. The inflammatory symptoms in purulent ophthalmia are always violent; the inflammation soon extends over the lining membrane of the eye-lids, and terminates, within a very short time in a copious discharge of yellow matter, (pus,) whence the name purulent ophthalmia is derived. The eye-lids soon begin to swell, in this form of the disease, and completely close over the eye-ball, so as to render it very difficult to examine the state of the eye. This is particularly the case in purulent ophthalmia of infants. From the rapid and severe nature of the inflammation, the membrane of the conjunctiva soon becomes thickened, and is raised up from the eye-ball by a net-work of vessels, distended with red blood, or spots of extravasated blood may be seen underneath the lining membrane of the eye. The secretion of purulent matter may go on for ten or fourteen days, or even longer, after which the discharge becomes thinner; the blood-red appearance of the eyeball diminishes, the swollen state of the eyelids gradually subsides, and with it the discharge of pus, until the disease at length entirely disappears. But, in many cases, the inflammation extends to the deep parts of the eye; the cornea bursts, and the vision is not only lost, but the patient's countenance is disfigured by the more or less complete destruction of the eyeball, and closure of the eye-lid over it.

In the early stage of purulent ophthalmia, the constitution is not much disturbed; but we must not be deceived by this fallacious appearance; as the disease advances and extends to the deep parts of the eye, it is attended by severe pain in the eyeball, coming on in paroxysms; frequent pulse, and loss of sleep at night; but the skin is seldom hot, nor do the general symptoms bear any proportion to the severity of the local disease.

GONORRHOEAL OPHTHALMIA.

Gonorrhœal ophthalmia arises from the contact of gonorr-

hœal matter with the eye, and is exactly similar in its course and symptoms to common purulent inflammation of the organ. It is a very severe disease, and often destroys the sight, beyond recovery, within forty-eight hours.

THE PURULENT OPHTHALMIA OF CHILDREN.

The purulent ophthalmia of infants is generally caused during the birth of the child by the application to the infant's eye of some matter, which proceeds from the genital parts of its mother. About the third day after birth, the child's eyelids are observed to be glued together by thick matter; soon afterwards, yellow pus, in great quantities, flows from between the eyelids, which are very much swollen, and of a bright red color; the eyes are very sensitive to light, and in order to avoid its irritation, the child keeps the eyelids constantly shut, and offers the most obstinate resistance when we endeavor to separate them. As the disease goes on, the whole surface of the eye is covered with a net-work of bright red vessels, concealed, however, by a thick coat of matter, and if active measures have not been adopted, the eyeball bursts, or sight is very considerably damaged, within ten or twelve days.

Treatment.

The principles of treatment for purulent ophthalmia, are the same as for severe inflammation of the eye; we shall, therefore, only add here, certain directions, which are rendered necessary by the peculiar nature of the inflammation. Local blood-letting, the use of purgatives and sudorifics, as before described, will serve to diminish the inflammation; but it can only be subdued by local treatment. A most important point is to clean away the yellow matter, frequently and completely, from the surface of the eye, by injecting with a syringe the tepid solution of corrosive sublimate.

Corrosive sublimate,	.	.	.	.	1 grain.
Muriate of ammonia,	.	.	.	.	6 grains.

Wine of opium,	. . . . .	2 drachms.
Water,	. . . . .	8 ounces.

Or,

Corrosive sublimate,	. . . . .	$\frac{1}{2}$ grain.
Vinous tinct. of opium,	. . . . .	1 drachm.
Rose-water,	. . . . .	4 ounces.

During the day, tepid eye-wash should be constantly applied over the eye-lids, by means of some lint, or linen rag, completely covered by a piece of oiled silk. The best lotion which can be used, is a solution of lunar caustic, (four (4) grains in an ounce of water). When the pain is considerable, the eye must be frequently fomented with a warm decoction of poppy-heads, and the eyelids may be prevented from sticking together by the use of red precipitate or citrine ointment. From the commencement of the disease, it will be proper to apply blisters behind the ears, or to the nape of the neck.

The margins of the eyes may be gently bathed in warm water, and mercurial ointment smeared under them at night.

Homœopathic treatment.

As a local application, sulphate of copper may be applied to the lids occasionally, as often as the irritation caused by the application will allow, bathe with milk and water and give the eyes complete rest.

CHRONIC INFLAMMATION FROM SCROFULA, ETC. (*Scrofulous ophthalmia*, or called by some *exanthematous ophthalmia*.)

This disease is chiefly confined to children under eight years of age, but is met with sometimes in adults. The most marked symptom is great intolerance of light, the lids being closed so that it is almost impossible to see the eye, the head being constantly turned away from the light. There is not much redness of the ball, but there are little spots of lymph or ulcers on the surface. If the disease is not arrested, the

eyes are gradually destroyed from these ulcers. The system is feeble, languid, and the digestive organs are deranged. The treatment of this disease should be undertaken only by a competent physician.

The symptoms of the exanthematous ophthalmia are very characteristic ; for, besides being connected with eruptions and confined to young people, the excessive intolerance of light, the enormous secretion of tears, and the relief from forcibly squeezing the eyes, are symptoms quite peculiar. The patient can scarcely hold up his head, and if he is desired to open his eyes, he is affected exactly as if he were looking on a mirror, reflecting a bright sunshine, every attempt causing a profuse gush of tears, and being instantly succeed by a violent and involuntary squeezing of the eyelids and knitting of the brows. He excludes all light, not only by holding down his head and squeezing the eyelids together, but by pressing a handkerchief firmly on them or by resting his face against a chair in some dark corner of the room. The intolerance of light is always more severe in the morning ; but in the afternoon it sometimes remits so much as to allow the patient to open his eyes and see to a very considerable degree for some hours. The tears are of an acrid and irritating quality so that the cheeks, alæ of the nose, and lips, often become inflamed, swelled, and sometimes covered with pustules and cutaneous ulcerations.

Treatment,

Purgatives are indispensable in this affection, where the abdomen is tumid and tense, and the alvine discharges of an unnatural character.

The following syrup may be used to remove the scrofulous taint from the system :

Yellow parilla root,	. . . . .	2 pounds.
Burdock and yellow dock, each,	. . . . .	1 pound.
Bittersweet and sassafras, each,	. . . . .	½ pound.
May apple,	. . . . .	2 ounces.
Bloodroot,	. . . . .	2 ounces.

Bruise, and boil the whole in five (5) or six (6) gallons of water, down to one (1) gallon; add, while hot, six (6) pounds of sugar; strain and bottle for use.

To each pint, add one half ($\frac{1}{2}$) drachm of hydriodate of Potassa, dissolved in one (1) or two (2) ounces of water.

Take a wineglassful, three times a day.

Apply a blister to the back of the neck or behind the ears. This will rapidly subdue the inflammation. The eyes may be steamed with a solution of one (1) drachm of opium to a pint of hot water, or may be bathed with the liquid. A decoction of poppies and chamomile flowers may also be used. After the inflammation is subdued, the eyes may be bathed with a solution of alum, two (2) grains to an ounce of water; or a solution of nitrate of silver, two (2) grains to an ounce of water, a few drops being put in the eye, once or twice a day.

The bowels should be kept open with a mild purgative, as mercury with chalk, or a little rhubarb or magnesia. Preparations of iron, sarsaparilla, and codliver oil are useful to strengthen the system.

Homœopathic treatment.

For specks before the eyes give euphrasia, hepar sulphur, silicea, calcaria carbonica, and nitric acid in the same manner.

In the beginning of the attack, give aconite and belladonna, as stated under inflammation of the eyelids and eyeball.

Dulcamara.—When the inflammation is caused by a cold, when the eyes are made worse by reading and there is dimness of sight, together with a sensation as if sparks of fire were flying out of the eyes. For ulcers or white specks on the eye balls, which remain after the inflammation is subdued, give euphrasia, hepar sulphur and silicea, each remedy, one week. A dose (six (6) globules) of the remedy selected, every evening. When silicea is given, a wash of twelve (12) globules of silicea in half a teacupful of water may be used.

Mercurius, phosphorus, causticum, baryta c. One or more of these may be requisite.

INFLAMMATION OF THE IRIS (*Iritis*).

Inflammation of the iris may be produced by various causes, but its occurrence from syphilis is incomparably the most frequent.

A pinkish belt of inflammation round the cornea, attended with cloudiness of the humors; constriction of very limited and sluggish motion of the pupil; great intolerance of light; obscure vision; a continued deep-seated aching pain in the globe of the eye, forehead, and circumorbital parts; and the appearance of very fine red lines and specks upon the iris, are the principal phenomena characteristic of this variety of ophthalmia. In the progress of the disease, adhesion takes place between the fibres of the iris, "the pupil losing its thin flowing edge, and becoming thick, stunted and gibbous." In slight cases, no other appearance of inflammation occurs in the eye, the conjunctiva remaining free from redness.

The pain is often fitful, and is particularly severe in the evening or early in the morning. The usual sensation, however, (except during these evening or morning exacerbations), is a feeling of constant painful pressure in the globe of the eye, with more or less of an aching pain in the temples, bone of the cheek, and forehead. In some instances, the pain in the eye is pulsatile, "marking every injection of the ophthalmic artery." In very acute and violent cases of iritis, lymph is deposited on the iris, appearing in small yellowish-red elevations on its surface; the pupil usually becoming angular and misshapen, and sometimes entirely blocked up by a layer of lymph.

It may divide into primary and secondary. The primary variety is commonly the consequence of syphilis, or of cold while the system is under the influence of mercury, and is distinguished from the secondary variety by "the more sparing vascularity of the conjunctiva, and the consequent more distinct appearance of the vascular corona round the cornea."

It usually comes on rather suddenly ; is attended with very severe pain in the orbit and head almost as soon as it commences ; and "the vision is more quickly and completely dimmed. In the secondary form the inflammation gradually extends from the contiguous tunics to the iris ; the conjunctiva is vascular and often rose-red ; the cornea much clouded ; the pupil retains its natural shape, or is but slightly deformed ; the pain is confined in a great measure to the eyeball and is not often very severe, but the intolerance of light is generally very considerable."

When the disease is violent, and continues unchecked in its course, the iris projects forwards, and uniting with the cornea, produces corneal staphyloma. If the inflammation extends to the choroid membrane, retina and vitreous humor, vision will inevitably be lost.

Strumous iritis is most apt to occur in children between the ages of six and eighteen, of a delicate habit, "fair complexion, light hair, and blue eyes." The cornea acquires a misty or slightly opaque appearance, with patches of red vessels usually appearing on its edges. A zone of pink vessels is formed around the cornea in various situations. The conjunctiva is but slightly red ; and on close inspection, the vessels of the sclerótica are found minutely injected, and running in straight lines to the margin of the cornea. Profuse lachrymation occurs, with distressing intolerance of light. The iris is nearly inactive, and vision is obscure. "The eyebrow appears to project considerably before the eye ; the muscles (if one eye only be affected), become thicker and stronger than those of the opposite side ; from their powerful contraction to exclude the light, and give to the countenance a distorted appearance. The pulse is generally quick and irritable ; the appetite uncertain ; the secretions unhealthy ; the skin dry and harsh, but variable in temperature ; the heat of the scalp being oppressively great, while the extremities are often chilled with cold."

Treatment.

Mercury, bleeding and belladonna were the supports upon which practitioners have been taught to rely. That the first two agents may be advantageously dispensed with is proved by reports of sixty-four cases ; all of which were cured by sustaining general health, relieving pain with narcotics, and keeping pupil dilated with belladonna.

The object must be to check flow of blood towards the part, to arrest effusion of fibrine, and to procure absorption when poured out. To gain these ends, patient to be kept quiet, preferably in darkened room, and with eye protected from light. Sedative fomentations, if the eye is morbidly sensitive ; bowels to be kept regular by mercurial purgatives, or enemata ; opium to be given to relieve pain ; diet to be plain but nourishing, and free from stimulants. Iodide of potassium is often of great value, especially in rheumatic and strumous iritis.

Iodide of potassium,	. . . . .	30 to 120 grains.
Glycerine,	. . . . .	1 fl. ounce.
Tinct. of aconite,	. . . . .	20 minims.
Wine of ipecac,	. . . . .	1½ fl drachms.
Juice of dandelion,	. . . . .	6 fl. drachms.
Compound decoction of sarsaparilla,	. . . . .	8 fl. ounces.
Mix.		

One sixth part, three times a day.

In that dependent upon syphilis, mercury is sometimes more useful, though not carried to salivation. If there be depression, the following formula is good :

Sulphate of quinine,	. . . . .	4 grains.
Diluted phosphoric acid,	. . . . .	20 minims.
Syrup of orange,	. . . . .	4 fl. drachms.
Water,	. . . . .	4 fl. ounces.
Mix.		

One small tablespoonful, three times a day.

When circumorbital pain is intense, relief may be afforded by mixing three (3) grains of powdered opium with ten (10) of mercurial ointment, and well rubbing the compound into the temple. The pupil to be kept dilated in order to prevent the iris from forming adhesions with capsule of crystalline lens, by belladonna, or more conveniently by a solution of atropia.

Strumous iritis is extremely obstinate in its duration. In delicate children, very small doses of calomel with prepared chalk may be given every evening, and a grain of quinine twice during the day. The quinine will often do more good in cases of this kind than any other remedy we possess. A seton in the nape of the neck, or a small issue on the arm, will in general contribute considerably to the reduction of the inflammation. Suitable clothing to keep up the regular warmth and action of the skin is an important auxiliary. The patient should also be allowed moderate exercise in the open air; and a simple digestible nourishing diet is to be enjoined.

Homœopathic treatment.

Great sensitiveness and pain, with agonizing distress over the eyebrow and in the forehead.

Belladonna.—Indicated by the excessive photophobia, frontal headache.

Mercurius.—Suffused redness; sensation as if there was sand beneath the lids and was wounding and irritating the eyeball; a flood of tears gushes from the eyes.

Bryonia.—Soreness of the eyeballs to the touch.

Gelseminum.—Excessive irritability of the eyes, with acute sudden pains that make the patient start.

A solution of atropine, four (4) grains to the ounce of distilled water, must be used for dropping in the eye once or twice a day, as required to keep the pupil widely dilated, so as to give the iris complete rest. The patient must be kept in bed in a darkened room; and when he begins to get about, he must wear a green shade.

DILATATION OF THE PUPIL (*Mydriasis*).

This derangement may be caused by disease, or by the action of mydriatic drugs. When this dilatation and immobility of pupil may, when seen in both eyes, be a symptom of grave brain disease, or simply the result of a rheumatic attack from exposure to cold or wet. Sometimes it arises from overwork of the eye, especially if the eyes differ somewhat in power.

The treatment must depend very much upon the circumstances of the case, as this affection sometimes arises from paralysis. Application of the extract of calabar bean, of the strength of four (4) grains to an ounce of distilled water, is of temporary and often permanent benefit. It usually at once produces contraction of the pupil.

CONTRACTION OF THE PUPIL (*Myosis*).

As in persons who work on small objects as watchmakers; as an accompaniment of iritis, or from disease or injury of spinal cord. There is an obscurity of vision, especially in a weak light. The remedies are rest, with tonics to improve the general health. The use of belladonna has been condemned

Homœopathic treatment.

Conium or *gelseminum*, combined with rest.

INFLAMMATION OF THE CHOROID (*Choroditis*).

Cannot be correctly distinguished, except by the aid of the ophthalmoscope. Its symptoms are common to other affections.

CATARACT.

From the Greek word, to break down, utterly to destroy, is an opacity of the crystalline lens or its capsule, or of both lens and capsule.

This opacity may be caused suddenly by violence or shock of a blow or injury interfering with the nutrition of the lens;

any wound which penetrates the lens is sure to produce opacity.

Infants are sometimes born with cataract.

It usually begins to make its appearance between 50 and 60 years of age.

Symptoms.

More or less dimness of vision in proportion to the age and density of the cataract, the patient sees best in a dim light, because then the pupil is sufficiently dilated to expose the edge of the lens, which is usually much the less affected part; so atropine dropped into the eye, improves the vision. In the commencement of cataract, distant objects appear hazy, or as if surrounded by a halo. The patient is inclined to look downwards and is usually able to fix the eye on objects. A cataract may be complicated with inflammation of iris or choroid, with separation of the retina, softening of the vitreous humor or amblyopia.

The cause is considered to be faulty nutrition of the lens, whether accompanying general debility, the result of constant exposure to very bright light, or the use of opium or tobacco,

All inflammation or a tendency to it, must be quite allayed before there is any chance of operating on cataract with success. This complaint can only be relieved by an operation.

Homœopathic treatment.

Homœopathy, however, has remedies which are said to relieve some cases, and they are as follows: silicea, gravitis, hydriolate of mercury, calcarea, carbonicum, conium and digitalis. A dose once or twice in twenty-four hours.

DULL VISION (*amblyopia*),

Dullness or obscurity of sight without any apparent defect in the eye. In order to ascertain whether such defect, is remediable by glasses the patient should be made to look

through a very small hole in a blackened card-board ; if this improves the sight, spectacles will be of service.

Amblyopia may arise from fright, from neuralgia, from lead-poisoning, from temporary congestion of the brain and nervous strictures of the eye, or be caused by suppression of perspiration, stoppage of the catamenia, or it may be brought on by loss of blood, as after flooding, hemorrhage, prolonged suckling, or by severe illness. For treatment of amblyopia see amaurosis.

OBSCURE VISION (*Amaurosis*).

This disease is a partial or complete loss of vision from disease of brain, optic nerve or retina. Reflex amaurosis due to remote causes,—irritation of teething, intestinal worms, ovarian or uterine disease, pregnancy, etc.

Symptoms.

Patient's gait and expression of countenance attract attention. The patient walks with an air of uncertainty ; the eyes, instead of being directed towards surrounding objects, have an unmeaning look—appear to be staring at nothing. In incomplete amaurosis, movements of iris and pupil dilated ; in total blindness, pupil greatly dilated and iris immovable. When both eyes are affected, they are often unnaturally prominent and of an unhealthy color. Flashes of light and specks appear before the eye.

As the disease progresses towards amaurosis, the vision is obscured by clouds and there may be some pain. In some cases there is a desire for a stronger light, and in others there is a dryness of the eyes and nostrils.

Amaurosis is distinguished from cataract, by the dimness or loss of sight being sudden, presenting an appearance of motes or specks covering parts of the objects. In cataract, the difficulty of sight increases very slowly, and it is compared to a mist before the eyes. In cataract will be seen a white, curtain-like film behind the pupil, which does not appear in amaurosis.

The signs of the approach of amaurosis are, pain in the forehead and temples, which diminishes as the amaurosis increases, and ceases when the blindness is complete ; dimness and weakness, and cloudiness of vision, sparks and motes floating before the eyes, annoying the patient. In reading or writing, a stronger light than usual is demanded.

Causes.

The causes may be hereditary, or caused by indigestion, abuse of stimulants, suppressed discharges, gout, rheumatism or scrofula, typhoid fever, the use of snuff, too long continued nursing, excessive grief, over exertion of the sight, working by a very bright light, and mechanical injuries, epileptic and other convulsions, apoplexy, irritation of the bowels, from worms or other causes ; fright, pressure upon the vessels of the neck preventing a return of blood from the brain, the operation of poisonous substances, such as belladonna, stramonium, opium, lead and quinine.

Treatment.

Attention should be paid to the general state of the health. If the amaurosis is caused by any difficulty with the digestive organs it should be rectified. The patient should avoid using the eyes especially in a strong light, keeping them shaded as much as possible at all times. All reading, writing and fine needlework must be avoided. Moderate exercise in the open air should be taken daily, and the feet bathed in warm water every night, and the head dipped in warm or cold water every morning. The diet should be nutritious and easily digested.

Dr. King recommends the following pill to be taken :

Iodine,	. . . . .	10 grains.
Sulphate of morphine,	. . . . .	2½ grains.
Strychnia,	. . . . .	1 grain.

Alcoholic extract of cohosh, a sufficient quantity to form the pill mass. Mix, and divide into twenty (20) pills.

Dose, one (1) pill, two or three times a day.

If the patient is affected by the strychnia, the quantity must be diminished. He also recommends a tar plaster, applied to the back of the neck, extending from one side of the spinal column to the other, and down the back to about the middle of the back, and the keeping up of a discharge as long as the patient can endure it.

Homœopathic treatment.

For simple weakness of the sight, take either pulsatilla, sulphur, belladonna, calcarea or phosphorus. For complete blindness, belladonna is to be given, where the malady is caused by inflammation and congestion of the optic nerve, or some part of the brain.

Nux vomica.—Pupils contracted, spasmodic motion of the eyeball, stupefying headache, worse in the light of the day.

China.—Pupil dilated and sensitive, dread of light, white cloud in the eye, specks floating before the eye, general debility.

Phosphorus.—Sudden attacks of blindness during the day, black spots before the eyes, dimness of vision, flame of the candle seems to be surrounded with a green mist, distant objects appear to be enveloped in smoke or mist.

Stramonium.—Eyes staring and glistening, sense of weight in the eyes, objects look small, or double, sparks and specks float before the eyes, dizziness and headache; especially suitable where the blindness is caused by hysterics, epilepsy and catalepsy.

Administration of remedies.

Give a dose of the selected remedy morning and night, unless other directions are given with the remedies.

COLOR BLINDNESS.

Among its synonyms are *chromato-pseudopsis* or *Daltonism*, after the chemist Dalton, who first described it. *Dys-*

chromatopsia or *dichromic* vision, when only two of the primary colors can be seen. *Achromatopsia* or *achromatic* vision, where no color can be distinguished. *Erythric* vision, where red cannot be discerned, etc. Since this subject has assumed proportions so great and important in railroad, and other affairs of life, requiring quick and accurate vision, I think it eminently proper to give it a place here. I will give a synopsis of an article in Chamber's Encyclopædia.

Color blindness, a term introduced by Sir David Brewster, signifies a false vision of color. It is a defect of vision owing to which certain persons are either unable to discern a single color, such as red, or to distinguish between two colors, such as green and red, so that they may be said to be blind to red, or to be blind to one of two colors presented simultaneously to the eye. Daltonism, after Dalton, who suffered under it. It occurs in eyes whose power of vision as to form and distance is otherwise perfect. The late Dr. Geo. Wilson thus classifies the varieties of the defect.

1. Inability to discern any color—properly so-called; so that black and white—i. e. light and shade, are the only variations of tint perceived.

2. Inability to discriminate between the nicer shades of the more composite colors, such as browns, grays, and neutral tints.

- 3 Inability to distinguish between the primary colors, red, blue and yellow, or between these and the secondary and tertiary colors, such as green, purple, orange and brown.

This third form is the most important variety of this affection. In extreme cases, although colors are occasionally quite correctly named, there is no certainty as to any color; in less severe cases colors, two colors at least, as red and green, and generally four as red, green, olive and brown, are not distinguished from each other. Yellow would appear to be the color which gives least difficulty to those not absolutely unconscious of color; while blue, if pure and well illuminated is readily recognized by the color blind, a few of whom indeed, describe it as the color which they see the best.

Red appears to be the color, the want of which may be said to characterize all the color blind. Indeed, Dr. Wilson thinks this disease might properly be called *anerythric* (no-red) vision. He says that while the normal eye, analyses white light into three colored elements, one of which is red, the color blind eye, on the other hand, analyses white light into two elements, neither of which is red. The eyes of persons having this defect of vision, have been carefully examined after death, without the discovery of any peculiarity. In consequence of the prevalence the defect, the investigations into its nature are of the greatest practical importance. Railway officials, for instance, should always be tested for it, lest, being color blind, they should mistake the various signals in use on lines of rail, and thus cause accidents.

Sir John Brewster, Sir John Herschel, Professor Maxwell, and many others have written on the subject of color blindness, and these works will well repay perusal.

HOT WATER IN THE LOCAL TREATMENT OF DISEASES OF THE EYE.

Dr. Leortus Connor (*American Journal of the Medical Sciences*) calls attention to the value of the systematic use of hot water in the local treatment of diseases of the eye. He holds that this agent is capable of inducing persistent contraction of the smaller blood vessels without having any irritating properties.

How shall hot water be employed?

On the answer to this question hangs the probability of obtaining the results alluded to.

1. The water must be as hot as the patient can comfortably bear with his hand. It is a curious fact that the eye will habitually bear with comfort water at a temperature that is very uncomfortable to the nose, face, and to the hand applying it. To allay their fears to the use of very hot water, I usually tell my patients at the first that the nose will be scalded before any harm is done to the eye.

2. The water should be placed in a large vessel, before the patient, on a chair or other support of a height that will readily permit the patient to bend the body upon the hips and the head upon the neck to such an extent as not to prevent easy douching the eye by water thrown against it with the whole hand. Nothing should touch it but the mass of water thrown by the hand with force sufficient to come into firm contact with the eye.

3. The amount of water in the vessel should be sufficient to maintain the temperature tolerable uniform during the entire douching. I usually direct two quarts.

4. The length of time that the douching is to be continued varies with the tissues to be affected and the degree of the inflammation or irritation. If it be merely a superficial irritant, a couple of minutes three times a day may suffice. In deep seated inflammation, or in more chronic cases, it may be necessary to apply it for five minutes every hour or half an hour.

The guide for direction in this respect lies in the effects produced in the vascularity of the tissues. If this can be sufficiently reduced by using hot water for two minutes every four hours ; it is both useless and annoying to use it oftener. But if the use of it five minutes in every half hour is required in order to produce the same effect, then the less frequent and less prolonged use of the water is equally unsatisfactory. In short, it needs to be used as "opium to quiet pain," in doses sufficient to accomplish the purpose for which it is employed.

Only certain definite changes will be produced by it ; all other changes require other remedies. While the remedy is a simple one and readily available almost everywhere. I know of none that requires more good sense and more care in its use than the one under consideration. Unless it be thus employed its use will be unsatisfactory. But under no circumstance have I observed any ill results to follow even the most careless or inefficient use of the remedy. But such use has failed to bring about the sought for result.

Cases are detailed illustrative of its value in diseases of the eyelids, conjunctiva, cornea and iris. In conclusion he says :

1. Hot water locally applied has the same power over inflammatory processes in and about the eye as in and about the uterus or any other portion of the body.

2. It has been shown by the late Dr. Pitcher, of Detroit, and by others since his time, that hot water has the power to contract blood-vessels so as to stop hemorrhage and to bring about a more normal state of the local circulation.

3. It is clear that hot water materially limits acute and chronic inflammatory processes, stopping or preventing septic poisoning and suppuration by its power to destroy or to hold in check the superabundance of white and red corpuscles and other protoplasmic elements so numerous at every spot of inflammation or other disturbance of local malnutrition.

4 To accomplish these ends hot water is an invaluable adjuvant to our means for treating all sorts of inflammations of the eye or its appendages.

5. It needs to be applied systematically, as frequently and as hot as is needful to attain the end sought in any particular instance. Further, it must be applied in such a manner as shall not do more harm than good. Thus the use of cloths, sponges or any similar substance that is brought in direct contact with the eye is likely to set up so much irritation as to largely diminish if not absolutely destroy the good effects of the hot water. The best method that we have found for hot water to the eye is to throw it by the handful against the eyeball, taking it from a vessel so situated as to render the act easy and comfortable. At no time should anything but hot water come in contact with the eye. The directions given in the body of this paper more specifically, are such as we have found absolutely essential to obtain any good result, or at least, the very best results.

6. The difficulties in carrying out this treatment are the amount of time and care called for by it. The surgeon who prescribes it must carefully watch that it is carried out ex-

actly as ordered if he expects the indicated results. In most cases he will be materially assisted by the sense of relief from pain and discomfort so generally felt by such as faithfully follow directions.

7. As regards catching cold, the last douching should be taken a half hour before leaving the house by all patients not confined to the house.

8. Used in the manner indicated, to accomplish the ends specified, hot water is an invaluable remedy in the treatment of diseases of the eye. It will accomplish certain indications of treatment more certainly, and more safely, more quickly and more pleasantly than any other single remedy with which we are acquainted.

THE EAR.

ITS AFFECTIONS.

EXTERNAL EAR.

By the external ear, we mean the expanded portion, named the pinna or auricle, which stands out from the head, and is commonly called the ear and the auditory canal or meatus. The pinna collects the sound, and auditory canal conveys it to the membrane of the tympanum or ear drum. The rim around the outside of the auricle, is called the hilex, and the rim inside the hilex is called the anti-hilex. The cavity around which the anti-hilex curves is called the concha, from its being hollow like a shell. The lobe or lobule is the lowest part of the ear, and is where the earring is worn by the ladies.

INFLAMMATION OF THE EAR (*Otitis*).

Inflammation is confined to the lining membrane of the tube which leads to the *tympanum* or drum of the ear, or may be situated beyond the drum, in the deeply seated parts of

the internal ear. In the former case the affection is commonly called earache, which though accompanied with acute pain and other unpleasant symptoms, is unattended with danger; in the latter the inflammation is sometimes very severe, and runs on to suppuration and subsequent destruction of the lining membrane, small bones, and other parts of the structure of the internal ear.

Symptoms.

Violent burning, beating, and itching pains deep in the ear, redness and throbbing, and sometimes the inflammation affects the brain, and delirium or convulsions may take place. It frequently follows scarlet fever and other diseases.

Causes.

The causes are, exposure to cold, exposing the head to a draught of air, or the inserting of foreign substances into the ear, like wads of paper and beans; insects getting into the ear will also produce it.

EARACHE (*Otalgia*).

This complaint should not be confounded with inflammation of the ear, as it is quite a different thing, there being no fever present, and the pain is rather of a neuralgic or rheumatic nature. The attacks come on suddenly, and are generally of short duration; the pain shoots over the head.

Common earache, which is generally the result of exposure to a current of air, is attended with ringing or buzzing noises, and impaired hearing, and when the pain is very severe there are slight feverish symptoms; but it seldom lasts beyond two or three days, and usually terminates without any discharge of matter from the ear, though sometimes matter exudes from the lining membrane of the passage leading to the drum, during several days or weeks, and ceases gradually, without leaving deafness or any other bad effect.

There is scarcely any ache to which children are subject so bad to bear, and so difficult to cure, as the earache. Take

a bit of cotton batting, put upon it a pinch of black pepper, gather it up and tie it, dip it in sweet oil and insert in the ear. Put a flannel bandage over the head to keep it warm.

Deep-seated inflammation of the ear is a disorder of a more serious character ; in this case the pain is very acute, and the sensation of tension and heat in the ear, accompanied with ringing, clanging, whistling, and various other sounds, is very distressing to the patient ; and the slightest noise or movement of the ear is almost intolerable. There is always more or less deafness ; the pain extends to the face and side of the head, and frequently the headache is intense. The skin is hot, the pulse quick and hard, and the appetite gone ; there is likewise thirst, restlessness, sometimes delirium during the night, and in a word the usual symptoms of inflammatory fever.

There is still another species of ear-ache, which comes on suddenly at regular or irregular intervals, without occasioning constitutional excitement. This form of the affection is purely nervous.

One of the most common causes is exposure of the head to currents of air, and it is not unfrequently brought on in children by hardened wax or foreign bodies in the ear, as peas, cherry-stones, worms, insects, etc., and the injurious habit of picking the ears, is a very common cause of the painful disorder.

Treatment.

In ordinary cases of ear-ache the treatment consists in the frequent application of warm fomentations of the decoction of linseed or marshmallow and poultices of linseed meal during the night, and in filling the ear with cotton wetted with laudanum and glycerine

The mixture of tartar emetic with nitre, in doses suited to the age of the patient and severity of the inflammation, may be given in order to moderate the constitutional excitement ; and the bowels should be kept freely open by saline purgatives.

The most active treatment sometimes fails in preventing suppuration, and the discharge of fetid matter often continues for months, or even many years, in spite of every means used to check it. As soon as the matter which has been pent up in the cavity of the drum makes its exit, the constitutional symptoms cease, and the pain abates. All that can be done afterwards is to prevent the matter from remaining in the deep seated cavities of the ear until it becomes acrid and irritating; to obviate this, warm water or milk and water should be frequently injected, with the intention of removing the offending matter. Cleansing the ear in this manner gives great relief to the patient, and in some cases is sufficient to allow the lining membrane of the ear to recover its natural state, but in others the discharge continues, becomes chronic and requires astringent injections.

Sulphate of zinc, (white vitriol),	. . .	6 grains.
Water,	. . . . .	12 ounces.

Mix.

A little of this lotion (tepid) should be gently injected into the ear three or four times a day. A seton placed in the nape of the neck, or repeated blisters behind the ear may be found serviceable in protracted cases. The use of tonic remedies to restore general health are the means indicated in all cases of long continued running from the ear. The most suitable tonics are quinine and preparations of iron, and the decoction of sarsaparilla has been found serviceable in many cases. Laudanum dropped in the ear frequently relieves nervous ear-ache.

DEAFNESS.

There are several things very commonly done which are extremely injurious to the ear, and ought to be carefully avoided.

The ears ought never to be boxed. The passage of the ear is closed by a thin membrane, especially adapted to be

influenced by every impulse of the air, and with nothing but the air to support it internally. What, then, can be more likely to injure this membrane than a sudden and forcible compression of the air in front of it? If any one designed to break or overstretch the membrane, he could scarcely devise a more effective means than to bring the hand suddenly and forcibly down upon the passage of the ear, thus driving the air violently before it, with no possibility for its escape but by the membrane giving way. And far too often it does give way, especially if, from any previous disease, it has been weakened. Many children are made deaf by boxes on the ear in this way. Nor is this the only way; if there is one thing which does the nerve of hearing more harm than almost any other, it is a sudden jar or shock. Children and grown persons alike may be entirely deafened by falls or heavy blows upon the head. And boxing the ears produces a similar effect, though more slowly, and in less degree. It tends to dull the sensibility of the nerve, even if it does not hurt the membrane. Children should never be blamed for being inattentive, until it has been found out whether they are not a little deaf. This is easily done by placing them at a few yards distance, and trying whether they can understand what is said to them in a rather low tone of voice. Each ear should be tried, while the other is stopped by the finger.

Many children are blamed and punished for inattention when they really do not hear. There is nothing at once more cruel and more hurtful to the character of children than to be found fault with for what is really their misfortune. Three things should be remembered :

1. That slight degrees of deafness, often lasting only for a time, are very common among children, especially during or after colds.
2. That a slight deafness, which does not prevent a person from hearing when he is expecting to be spoken to, will make him very dull to what he is not expecting.
3. That there is a kind of deafness in which a person

can hear pretty well while listening, but is really very hard of hearing when not listening.

The chief avoidable cause of deafness is catching cold, and whatever keeps us from colds, helps us to preserve our hearing. We should do, therefore, those things that help to keep colds away ; of which the first is taking plenty of fresh air ; the second using enough, but not too much cold water all over us, taking especial care to rub ourselves thoroughly dry, and never to let it chill us ; and the third is to avoid draught and wet, especially sitting in wet clothes, or being in close or very heated rooms. But there are some kinds of cold, especially hurtful to the ear. One is sitting with the ear exposed to a side wind, as too many people do now on the roofs of omnibuses and so on. We should always face the wind then, if we are not chilled, it is hard to have too much of it. An other hurtful thing is letting rain or sleet drive into the ear, against which, if it were not that people do sometimes suffer from this cause, it would seem as if it could hardly be necessary to caution them.

Another source of danger to the ear, however, arises from the very precautions which are sometimes taken against the last mentioned.

Nothing is more natural than to protect the ear against cold by covering it with a piece of cotton wool ; and this is most useful if it is done only on occasions of special exposure as when a person is compelled to encounter a driving storm, or has to receive on one side of the head the force of a cutting wind

But it is astonishing in how many cases the cotton wool thus used, instead of being removed from the ear when the need for it has passed, is pushed down into the passage, and remains there, forming itself an obstruction to hearing, and becoming the cause of other mischiefs. It should be remembered, that constantly covering up the ear is adapted to injure it. On the whole, men, in whom the ear is habitually exposed, suffer, if anything, less from ear-disease than women, in whom it is so often covered. Nor can the "hat" be held

an unsafe head-dress in this respect for the latter sex. But it is important that there should not be frequent changes, especially in cold weather, from a head-dress which covers to one which exposes the ear. It is better that the air should always have free access to it ; but if this has not been the case, the summer should be chosen to make the change.

All sorts of substances are sometimes put into the ear by children who do it to themselves or to each other in ignorant play. If every parent and teacher warned his children against doing this it would not be a useless precaution. When the accident happens, the chief danger is that of undue haste and violence. Such bodies should be removed by syringing with warm water alone, and no attempt should be made to lay hold of them or move them in any other way. It is enough to reflect, again, that the passage of the ear is closed by a delicate membrane, to show the reason for this rule. When no severe pain follows, no alarm need be felt. It is important that the substance should be removed as speedily as is quite safe, but there need never be impatience ; nor should disappointment be felt if syringing need to be repeated on many days before it effects its end. It will almost invariably succeed in careful hands, and is most affective if the ear is turned downward and syringed from below.

Now and then an insect gets into the ear and causes great pain ; the way to get rid of it is to pour oil in the ear. This suffocates the insect.

Among the causes of injury to the ear must unfortunately be reckoned bathing. Not that this most healthful and important pleasure need therefore be in the least discouraged ; but it should be wisely regulated. Staying too long in the water certainly tends to produce deafness and other evils ; and it is a practice against which young persons of both sexes should be carefully on their guard. But independently of this, swimming and floating are attended with a certain danger from the difficulty of preventing the entrance of water into the ear in those positions. No cold water should ever enter the ear ; cold water is always more or less irritating,

and if used for syringing rapidly produces extreme giddiness. In the case of warm water, its entrance into the ear is less objectionable, but even this is not free from disadvantage. Often the water lodges in the ears and produces an uncomfortable sensation until it is removed ; this should always be taken as a sign of danger. A knowledge of the danger is a sufficient guard. To be safe it is necessary to keep the water from entering the ear. If this cannot be accomplished otherwise, the head may be covered. Wet hair, whether from bathing or washing, may be a cause of deafness if it be suffered to dry by itself. Whenever wetted, the hair should be wiped until it is fairly dry. Nor ought the practice of moistening the hair with water to make it curl, to pass without remonstrance. To leave wet hair about the ears is to run great risk of injuring them. In the washing of children, care should be taken that all the little folds of the outer ear are carefully dried, and gently, with a soft towel.

Improper methods of cleaning the ear.

This is probably the most frequent way in which the ear is impaired ; that is, by the attempt to clean them. It ought to be understood that the passage of the ear does not require cleaning by us. Nature undertakes that task, and in the healthy state fulfils it perfectly. Her means for cleansing the ear is the wax. Perhaps the reader has wondered what becomes of the ear-wax. It dries up into thin fine scales, and these peel off one by one from the surface of the passage, and fall out imperceptibly, leaving behind them a perfectly clean smooth surface. In health the passage of the ear is never dirty ; but if we attempt to clean it, we infallibly make it so. Here, by a strange lack of justice, as it would seem, which, however, has no doubt a deep justice at the bottom, the best people, those who love cleanliness, suffer the most, and good and careful nurses do a mischief negligent ones avoid. Washing the ear out with soap and water is bad ; it keeps the wax moist when it ought to become dry and scaly, increases its quantity unduly, and makes it absorb

the dust with which the air always abounds. But the most hurtful thing is introducing the corner of the towel screwed up, and twisting it round. This does more harm to ears than all other mistakes together. It drives down the wax upon the membrane much more than it gets out. But this plan does much more mischief than merely pressing down the wax. It irritates the passage, and makes it cast off small flakes of skin, which dry up, and become extremely hard, and these also are pressed down upon the membrane. Often it is not only deafness which ensues, but pain and inflammation, and then matter is formed which the hard mass prevents from escaping, and the membrane becomes diseased, and worse may follow. The ear should never be cleaned out with the screwed-up corner of a towel. Washing should extend only to the outer surface, as far as the finger can reach.

Ear-pricks, again, are bad. If there is any desire to use them, it shows that the ear is unhealthy; and it wants soothing not pricking; and there is another danger from introducing any solid thing into the ear. The hand may get a push, and it may go too far. Many is the membrane that has thus been broken by a bodkin. Sportsmen sometimes have their membrane pierced by turning suddenly while getting through a hedge; and it even happens that a boy at school may put a pen close to another's ear, in play, and call to him to turn his head, and the pen pierces the membrane. Artillerymen, and also eager sportsmen, and very zealous volunteers, incur a danger from this cause. It is well to stop the ears when exposed to loud sounds, if possible, also to avoid belfries when the bells are about to ring.

Treatment for inflammation

When the inflammation is acute, the case should be treated for inflammation of the ear, and the ear syringed with warm water, or a decoction of poppies. The better plan, is to pour the fluid into the ear with a teaspoon, as the syringe is likely to irritate and cause headache. When the discharge commences, the ear should be washed out with castile soap and

water, and immediately after, with a weak solution of alum, or sulphate of zinc, one (1) grain to the drachm of water. Acetate of lead, one (1) or two (2) grains to the ounce of water, will sometimes prove beneficial. One (1) part of glycerine, and five (5) parts of rose water, is also recommended. If the discharge is very offensive, the ear should be syringed with a mixture of two (2) drachms of the solution of chloride of lime, and half a pint of water, at the same time using a solution of nitrate of silver, five (5) grains to the ounce of water. Care should be taken in the using of these applications not to check the discharge too suddenly.

The ears may be syringed out with warm soap suds, after which an infusion of golden seal, to which a small portion of pyroligneous acid has been added, should be injected. The acid should be only used when the discharge is very offensive. A decoction of equal parts of golden seal, and wild indigo root, may be used in some cases, or a solution of sesquicarbonate of potassa.

For deafness.

If the deafness is caused by an accumulation of wax, a small portion of olive oil should be dropped into the ear, every night to soften it, and the ear syringed out with water, every day, until the wax is washed out, and the following should be applied afterwards and continued for some weeks :

Camphorated oil,	. . . . .	$\frac{1}{2}$ ounce.
Soap liniment,	. . . . .	$\frac{1}{2}$ drachm.

Mix, and apply on a little wool or cotton. When it is caused by taking cold, the treatment for catarrh should be used. When caused by sore throat, inhaling the vapor of hot water with vinegar, will be beneficial; and small blisters should be applied behind the ears. If it is caused by rheumatism, or any thing like rheumatism, the following ointment may be used :

Acetous extract of colchicum,	. . .	1 scruple.
Prepared lard,	. . . . .	1 ounce.

Homœopathic treatment for inflammation.

Attempts should never be made to arrest the discharge by injections, as the consequences are sometimes most dangerous. If the running of the ears follows measles, give pulsatilla and sulphur for four days, each remedy on two successive evenings, six (6) globules at a dose. If it follows scarlet fever, give belladonna, mercury, hepar sulphur, and lycopodium, in the same manner. If it follows small pox, mercury, lachesis, sulphur, and calcarea carbonica. These remedies should be given for a week or more, before another remedy is chosen. When the matter becomes very offensive, give mercurius, hepar sulphur, lycopodium, pulsatilla, or sulphur. When the matter is bloody, pulsatilla, mercury and lachesis may be given. If there is severe headache and fever present, give belladonna and bryonia, in alternation (turn about). If the discharge is suddenly suppressed, and the glands of the neck, or in front of the ear begin to swell, give pulsatilla, mercury, or belladonna. If the suppression is caused by taking cold, give rhus, or dulcamara. If after the suppression the testicles swell, give pulsatilla, nux vomica, or mercury.

Administration of remedies.

Of the selected remedy, dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and give one teaspoonful each hour.

Homœopathic treatment for deafness.

If the deafness is caused by an accumulation of wax in the ear, it should be first carefully removed, by dropping a small quantity of warm milk or sweet oil in the ear. For the soreness remaining after the operation, give arnica. If there is too great dryness of the ear, or after fever and ague, give carbo vegetabilis, every night one dose. After continuing

this for a week or more, if there is no improvement, give graphites, particularly when there is a thundering or humming in the ear, especially in the night. If no better after using graphites, give lachesis, nitric acid, petroleum, one after another in the same manner. If the deafness is caused by congestion of the head, give belladonna, coffea, nuxvomica, sulphur or silicea, a dose every morning and evening, commencing with the first remedy and giving the remedy selected three days before another one is chosen. If it follows measles, give pulsatilla and carbo vegetabilis. If after scarlet fever, belladonna and hepar sulphur. If after small-pox, mercury and sulphur, a dose every other evening, alternately. If it is caused by cold in the head, give chamomilla, arsenic, lachesis, mercury, sulphur or pulsatilla. If it follows intermittent fever which has been cured by the use of quinine, give carbo vegetabilis, pulsatilla sulphur, and calcarea carbonica; each remedy one week, a dose each evening until better. If caused by the suppression of the discharge from the ears and nose, give pulsatilla, mercury, belladonna or hepar sulphur, for two or three days, one remedy once a day.

FEVERS.

AGUE — CHILLS AND FEVER — INTERMITTENT — REMITTENT — MALARIAL — BREAK-BONE FEVER OR DENGUE — TYPHOID OR ENTERIC FEVER — TYPHUS — SCARLET FEVER — YELLOW FEVER.

AGUE — INTERMITTENT FEVER — CHILLS AND FEVER — MALARIA OR FEVERNAGER, — (*as the poor afflicted sufferers of some localities term it.*)

Ague generally declares itself under three forms, namely, the quotidian, tertian and quartan.

The quotidian form has an interval of twenty-four hours,

and the fit usually commences in the morning. The type of ague is not so common as the other two, and occurs generally in spring.

The tertian has an interval of forty-eight hours, the fit occurring about noon. This is the most common form and prevails also in spring.

The quartan form has an interval of seventy-two hours, commencing in the afternoon. This form prevails in autumn, and is the most difficult to overcome.

It must not be supposed that these forms of ague commence invariably at certain periods of the day; they may commence at any hour; the periods we have mentioned, however, are the most usual.

Each paroxysm or fit of intermittent fever has three well-marked stages, a cold, a hot and a sweating stage.

The cold stage is ushered in by the following train of symptoms; languor, listlessness, general uneasiness, with depression of spirits, aversion of food, a feeling of soreness on the back and extremities. The face and extremities then become pale, and a cold sensation is felt in the back and loins, gradually extending over the whole body, until decided shivering takes place; the lips and nails assume a livid hue, the teeth chatter, the skin presents the appearance of what is vulgarly called goose's skin, respiration becomes oppressed, the pulse is weak, the mouth and throat dry, all secretions are diminished, and the patient sometimes vomits.

The hot stage. After a longer or shorter duration, the shaking gradually goes off, the heat of the body returning, until it goes far beyond the natural standard. The skin then becomes dry, the face flushed, the pulse full and hard, the tongue furred, and the breathing, which was considerably affected during the cold stage, becomes easier. There is great thirst, severe headache and restlessness. The urine, which in the first stage was pale, is now high colored, the sensibility previously more obtuse than natural, is now increased, the eyes have a bright and glistening appearance, and sometimes delirium comes on.

The sweating stage. Perspiration commences on the brow and extends over the whole body, until the patient sweats freely at every pore. The pulse and temperature rapidly fall to the normal standard, and the interval or intermission from which the fever takes its name has commenced. The types of the fever are also named from this interval, or rather the length of it. These are the quotidian, which recur daily, and this is the primary disease and the form in which it almost always commences. The tertian is the name given to that form in which there is a paroxysm every other day, and quartan every third day.

When the disease is giving way, the fits become milder, and gradually later until at length the ague is no longer felt; but when it is increasing, the fits become more severe, and gradually return earlier, so that it is not unusual for the tertian form to become quotidian, and the quotidian to assume remittent type of fever. I do not believe that a genuine well marked case of ague was ever produced by any other cause than malaria.

Treatment during the fit.

In the cold stage it will readily occur to every one to cover the patient with blankets or other warm clothing, and to administer warm drinks. If the tongue is foul or the stomach oppressed by food, reaction is hastened and the system placed in better condition to receive the treatment by the use of an emetic; this can be accomplished by the use of twenty (20) grains of ipecac in three (3) or four (4) ounces of water. Under ordinary circumstances it is not necessary to give an emetic. The same rule should apply to the use of purgatives. If the bowels are loaded a Seidlitz powder or a dose of citratized magnesia, will relieve the accumulation—relieve the congested condition and prepare the way for the action of quinine, which is the remedy.

When there is urinary irritation, it can be relieved at once by giving a dose of bicarbonate of potash with ten (10) drops of laudanum.

It may always be assumed that the first attack is of the quotidian type, or a paroxysm every day, and measures may be taken accordingly; and if the patient gets twenty-five (25) or thirty (30) grains of quinine between the time of the sweating stage, and one or two hours before the same hour arrives next day, that marked the time of the first paroxysm, it may be very safely calculated that he will not have a second paroxysm.

To prevent second chills take thirty (30) grains of quinine and half a ($\frac{1}{2}$) teaspoonful of Cayenne pepper in two wafers—wrap in thick comfortables and go to bed and sweat.

A good way to administer quinine for chills in a fluid state, with a few drops of diluted sulphuric acid (elixir of vitrol) in it; of this enough should be given about the termination of the sweating stage, or before, for the patient to get ten (10) grains, the balance at equal intervals, calculating the time so the patient shall get the last dose at least two or three hours before the time at which the chill began the day previous. If the solution of quinine is given the bitterness is best covered in a little syrup of orange peel, and if this is not at hand, in coffee, cold. If the patient objects to the use of the solution of quinine it may be given in pills or in powder, enwrapped in wafers, bought at any druggists at ten cents per box, of twenty each or in capsules, or even mixed in very strong coffee. The taste is disguised so that very little disagreeable effect remains. For an adult try and use thirty (30) grains—never less than twenty (20), and for children in proportion.

“If the stomach is so irritable that the medicine cannot be retained in it, no time should be lost; fifteen grains, in some beef tea or in four ounces of starch water, should be given by injection, after first washing out the rectum by an injection or two of warm water. These injections of fifteen grains of quinine should be repeated often enough for the patient to get fifty (50) or sixty (60) grains before the time for the next paroxysm, in which case it is not likely the paroxysm will occur; if, however, it does, the same course should

be pursued after it, that has been recommended after the first."

If the paroxysm is prevented, it is best to give the patient three grains, three times a day. In four weeks from the date of the first attack, there will be a tendency to a return of the attack. A day or two before the time, the patient should again be brought under the use of quinine, which should be maintained until that time is past. When a case is met with where quinine seems to have lost its effect or control over the malarial poison, it may gradually be found that the patient has been long in a malarial district, and has enlargement of the liver or spleen. In such cases, the fluid extract of taraxicum (common dandelion), with small doses of podophyllin (may apples or mandrake) are very useful. Add to this the free use of bi-carbonate of potash, well diluted, and it will be found that quinine, before useless, will soon re-assert its power. Next to quinine, for the treatment of intermittents, is arsenic. Unlike quinine, this is a highly dangerous remedy, and should be used with much care. Fowler's solution is safe however, in doses of ten (10) drops, three times a day for three or four days. "If it is administered, a careful look-out should be kept for its earliest signs of constitutional action, which are watering of the mouth, a silvery appearance of the tongue, redness of the eyes; when these appear it must not be continued."

A nutritious diet, plenty of moderate exercise, pure air and pure water are powerful curative means, and must never be lost sight of in the treatment of disease.

Amyl nitrite.—Its friends claim, that in every instance the disease yielded quickly and permanently to the *amyl* treatment. Mix the drug with an equal volume of oil of coriander, to make it less volatile and to cover its odor, and administer as follows:

Four (4) drops of the mixture are poured on a small piece of lint, which is given into the hands of the patient to inhale freely; the patient soon becomes flushed, and both his pulse and respiration are much accelerated, and when the

patient feels warm all over, the inhalation is discontinued, as the symptoms continue to increase for some time afterward ; a profuse perspiration now sets in, which speedily ends the attack, though in some cases the cold stage merely passes off without any hot or sweating stage.

The following is a valuable mixture for chills :

Sulphate of quinine and sulphate of	
cinchonidia, each,	30 grains.
Sulphuric acid,	10 minims.
Liquid potass. arsen.,	1 drachm.
Ex. nux vomica,	10 minims.

Water, sufficient to make four (4) ounces. Dose, table-spoonful, every four hours, when fever is off.

The following is a reliable remedy in chronic chills :

Sulphate of cinchonidia,	60 grains.
Chenoidin,	60 grains.
Podophyllin,	3 grains.
Pulv. ipecac,	30 grains.
Pulv. capsicum,	80 grains.

Make into sixty (60) pills. Take two, every three hours, with water slightly acidulated with muriatic acid.

This has proven a very successful treatment, as has also the following :

Sulphate of quinine,	5 drachms.
Crystals of iodine,	15 grains.
Pulv. ipecac,	20 grains.

Triturate the iodine, add ipecac and quinine, mix the whole, divide into forty (40) pills. One (1) pill half an hour before each meal.

Dr. John H. Pool, says : "I have been more successful in the treatment of recurrent chills by the following plan of

treatment than from any other : Give fifteen (15) to twenty (20) grains of quinia or cinchonidia, three hours before the expected paroxysm. I prefer one large dose to the same quantity in broken doses at intervals of an hour or two. One large dose will cause less distress to the patient than small doses at short intervals. By giving one large dose we will break up the paroxysm, for none of it will be eliminated by the kidneys until the work is done. But to prevent their return, further treatment is required. On the critical days repeat the anti-periodic in ten (10) grain doses. To reduce the enlarged spleen (which is nearly always present) and to bring the liver into its normal condition, administer Dugal's solution with ten (10) grains additional of iodide of potassium to the ounce in five (5) or ten (10) drop doses before meals, and three (3) to five (5) drop doses of Fowler's solution after meals. Without these adjuncts the treatment is apt to prove a failure. On the 14th and 21st days, give the anti-periodic again for a day or two.

For the last five years I have been using largely cinchonidia and sulphate and I have yet to discover that it is not equally as efficient as a periodic as quinia sulphate.

Dr. Austin Flint says, I give at once five (5) grains of quinine and repeat the dose every four hours until slight signs of cinchonism are detected. I continue it in full doses until it no longer occurs, and in small doses for a long time afterward. It is generally given by the mouth but may be given by the rectum in double the quantity in enemata. Or if these both be impracticable by hypodermic injections in doses by one half the quantity given by the mouth.

In effecting a cure, quinia acts as a toxical agent, destroying the the low organism on which the disease depends for its development.

We may sometimes abort a paroxysm by full doses of opium, or by pilocarpine. Very favorable reports of the efficiency of this latter agent have recently been recorded. Iron should be given for the anæmia attending the disease ; nothing will diminish in size the enlarged spleen so speedily as quinia.

We have a much more dangerous form of this disease, namely, pernicious or congestive intermittent fever, the distinctive feature of which is its fatality. It may terminate in death in a few hours. It is rare in temperate, but frequent in tropical climates.

The only anatomical appearance that distinguishes it from the benign form is the more strongly marked melanotic character of the tissues. We must remember that pernicious paroxysms may be preceded by several of the benign character.

There are several varieties of pernicious intermittent. We may have simply a condition of profound coma in the cold stage, death taking place before the stage of fever. Or the coma may be accompanied by delirium, vomiting, purging and convulsions.

Again, there may be simply great prostration, or this may exist with hamaturia.

In the stage of coma we must use external and internal stimulants, study the indications and treat accordingly. Our first object is to carry the patient safely through the first paroxysm, then to prevent its recurrence by quinine in full doses, pushed until cinchonism is produced. I give an adult twenty (20) to thirty (30) grains at once, and if a distinct impression is not produced in four hours I repeat the dose, bearing in mind that the drug may be given in dangerous doses. Keep the patient quiet and warm, and when you expect another paroxysm give an opiate and try the abortive effect of pilocarpine.

REMITTENT FEVER.

Simple remittent, often wrongly called bilious fever, is really a variety of intermittent fever; it commences as an intermittent, develops into a remittent, and is followed by an intermittent. The same cause produces both. The difference is that there is a period of remission instead of an intermission, which lasts from three to twenty-four hours or longer, and may have the varieties of the simple form of inter-

mittent. It may be inaugurated by nausea and vomiting of bile, etc., but it is rare for typhoid symptoms to be developed.

Its anatomical characteristics are the same as those of intermittent. The disease seems to be more frequent in certain climates and certain years than in others. With reference to diagnosis, the remission will serve to distinguish it.

Treatment consists in the prompt administration of quinine.

There is a pernicious remittent fever in which the same remarks apply as to pernicious intermittent. The tincture of iodine, in doses of fifteen (15) minims three times a day, equals, if it does not surpass, cinchonidia in its action in acute malaria. It was tried in 250 cases at the Baltimore dispensary during the year 1881, and was found more successful in effecting a cure than the usual malarial mixture of cinchonidia and arsenic. The rationale of its action is, that iodine destroys the organisms in the blood which cause the symptoms of malaria, or in other words, destroys the malarial poison.

Homœopathic treatment.

Prof. N. F. Cooke of Chicago recommends nitric acid for the treatment of this disease. Mix twelve (12) drops of the chemically pure acid, with four (4) ounces of distilled water.

Give a teaspoonful every three hours, without regard to the paroxysm. When at last there is no recurrence of the chill, give the acid three times a day for a week or ten days. Then lengthen the interval to twice a day for two weeks. Then once a day for one week, then every other day for another week. If this treatment is ineffectual the professor recommends minute doses of quinine.

The doses should be one half ($\frac{1}{2}$) grain each—the most agreeable form is in one half ($\frac{1}{2}$) grain sugarcoated pills. If these cannot be procured, give the powder.

Commence giving the quinine after the sweating stage has ceased, and give a dose every two hours if the ague is

quotidian, (every day) and every three hours if the ague is tertian (every other day). Continue the medicine until the symptoms of the next chill appear, and then stop.

After the paroxysm give the medicine as before, and continue the treatment until the chills are broken. During the paroxysm give whatever remedies are indicated.

Aconite.—If there is great fever.

Belladonna.—If pain in the head and flushing of the face.

Bryonia.—If there is much aching of the bones.

Arsenic is recommended by Hartlaub when the face is puffed and of an earthy color or sunken and yellowish; chills without thirst, attacks generally coming on in the morning or evening.

Pulsatilla should be given when there is long chill, little heat and no thirst, symptoms of dyspepsia, chills commence with vomiting.

Veratrum album.—External chill and cold sweat, internal heat; great thirst, corpse like color of the face, cramps, delirium, great anxiety, quick collapse of the strength.

Ignatia.—For nervous intermittents, especially when caused by fright. Thirst only during the chill; pain in the bowels during the chill. The fever begins in the afternoon and lasts all night. The least noise increases the sufferings of the patient.

All the last named remedies should be given by dissolving twelve (12) globules in twelve (12) teaspoonfuls of water and give a teaspoonful every two or three hours, continuing the medicines during the paroxysm.

TYPHOID OR ENTERIC FEVER.

Enteric or typhoid fever is an acute infectious disease characterized by swelling of and ulceration of the intestines, usually accompanied by successive crops of rose colored spots chiefly on the abdomen.

The forming stage of this fever is generally more protracted than any other. For many days, or even weeks, the

patient is sensible of not being quite well as usual ; has less energy ; less vivacity ; a more capricious appetite ; has some irregularity of the bowels ; sleep more disturbed, and not so refreshing as usual ; finally, pains strike him of a peculiar kind, often assuming the form of a crick in the neck, or aching of the head, and soreness about its junction with the neck. The feeling of discomfort gradually becomes more decided ; and although he is still often unable to refer illness to any particular point, yet is conscious of being very sick, but perhaps still mopes about for a few days longer, expecting every day to get better. The pulse is more frequent than natural, and the surface, especially of the body, a trifle too hot and the extremities rather too cool ; the countenance looks tired and expressionless ; tongue furred and unusually white, as though it lacked blood or presents the hue of venous blood. There is tenderness of the abdomen ; upon making pressure just above the umbilicus, (navel), or a little to the right, you will discover that the patient will flinch ; pressure along the spine will commonly detect several points of tenderness ; the chief complaint, however, is of weakness, which is attributed to the operation of the purgative, if one has been taken.

• If the disease is suffered to progress, the giddiness of the head will be changed for severe pain, delirium, or stupor as from intoxication. There is now decided tenderness the whole length of the spine ; the tenderness of the abdomen is also considerably increased, attended with more or less fullness ; the heat of the trunk is augmented, and the pulse accelerated, and is small and wiry under the touch. Gripping in the bowels, aching pains in the limbs, and headache, with disturbed sleep, constitute the chief sources of complaint. The headache is generally aggravated towards night, but is seldom accompanied with such intellectual disturbance. Sometimes an air of astonishment is observed in the patient's countenance on awaking, and ideas are slightly confused for a short time. There may be constipation or diarrhœa. The passages will be yellowish or greenish, sometimes mixed with blood. There will be a pinching pain in the bowels. The

pain in the bowels is increased by pressure over the right side.

As the disease progresses there will be delirium, which may be very strong. The tongue becomes dry and of a brownish color; the patient is either very restless or lies in a stupefied condition.

Generally at this stage, an eruption makes its appearance, consisting of small red spots coming out on the abdomen, and in some cases extending over the limbs; and also, at the same time, by looking closely, little vesicles containing watery fluid, will be seen on the neck and upper part of the chest.

If the disease continues, the tongue becomes quite dry, with a brown or black coat, and the teeth are covered with a black substance, also the lips and gums. The heat of the body sinks below the natural standard. Perspiration may take place, which is very offensive. The abdomen swells and becomes drum-like. The patient lying on the back, often slides toward the bottom of the bed; and there may be twitching of the muscles of the face, picking at the bed-clothes, and mutterings. Efforts may be made to rise from the bed and try to escape. The bowels and urine are now discharged without the patient being able to prevent it, or there may be a suppression of the urine, in which case it is necessary that it should be drawn off with an instrument.

As the disease progresses, the extremities become cold and clammy, and the whole surface of the body is bathed in a clammy sweat. Hiccough occurs; the countenance looks pinched, and the patient gradually sinks away.

Causes.

This fever is undoubtedly contagious—may be carried from one person to another. One attack will generally ensure a person against having another. It is produced either by over-exertion of body or mind, excesses of any kind, bad air and water, living among a crowded population, in filthy streets, and small apartments, or from carelessness in emptying the evacuations. Every evacuation, as soon as passed, should be disinfected with carbolic acid. No surface, well

water or pump water, whether boiled or not, should be used in a district where there are many cases of typhoid fever, but that all drinking water should be obtained from some spring not liable to contamination. I need not say that this precaution is of the greatest importance to the patients themselves. I am quite sure that neglect of it gives rise to many of the relapses in typhoid fever cases, perhaps more frequently than any other cause, except the too early administration of solid food.

General treatment.

To reduce the fever and produce perspiration, from three (3) to ten (10) drop doses of the tincture or fluid extract of veratrum viridi, every hour, until the fever subsides. When the bowels are much swollen, poultices of hops or linseed meal may be used. If the mouth is foul, a weak infusion of black tea may be given. If there is sleeplessness, give twenty-five (25) or thirty (30) drops of laudanum. If the head is hot, the hair may be cut; and the head then kept cool by sponging with ice water, or vinegar and water, and leeches should be applied to the temples. If there is great weakness, the patient have milk and broth. When the fever runs low, quinine should be given in moderate doses. A good stimulating drink is made by dissolving one (1) drachm of chloride of potash in a pint of water which may be taken as the patient desires. To restrain the diarrhœa, the following may be given :

Dover's powder,	. . . . .	½ drachm.
Prepared chalk,	. . . . .	1 scruples.

Mix and divide into twelve (12) powders. Give a powder every two or three hours, as necessary. Frequent spongings with water, cold or warm, according to the feelings of the patient, should be used. Grape and oranges may also be allowed, taking care not to swallow any of the solid substance ; as drinks, cold lemonade, or ice-water may be used.

about the second week, when the patient becomes very weak, sago, tapioca, or arrow-root, made with three parts of water and one of milk, thick gruels or panada, flavored with nutmeg, may be given. It is a good plan to give a wineglassful of one of these preparations every two, three, or four hours, according as the strength of the patient requires it. In some cases, milk will be found very beneficial, giving a tablespoonful every hour or two; and if the stomach be irritable, mix it with an equal part of lime water.

Care should be taken to examine the bladder frequently, as it is liable to become filled with water, which is necessary should be drawn off. When the fever is very high, the surface of the body may be bathed in cold water frequently, and the patient should be allowed plenty of cold water to drink, also ice to eat.

The patient should not be allowed to leave his bed, until convalescence is well advanced, should be fed on fluids only, and should be allowed no vegetable food. The diarrhœa should be carefully controlled, and constipation treated by enemata. For the inflammatory condition of the bowels, opium is the best remedy. Hemorrhage should be treated with astringents and ice.

Dr. Lambert Oll, says: "I have noticed the similarity of symptoms existing in the following diseases, both in the incipient and more advanced stages, I have therefore formulated the following differential diagnosis of *typhoid* fever, and *tubercular meningitis*.

INCIPIENT STAGE.

Tubercular meningitis.

There is a gradual loss of flesh, extending over some weeks or months.

Irritability more intense and prolonged; restless during sleep.

Typhoid fever.

Loss of flesh only apparent after fever-process has existed some time.

Irritability not so intense; quieter during sleep.

Shunning light is common.

The temperature has no characteristic change ; may be high in the morning and low in the evening, or the same morning and evening.

Vomiting causeless, and not connected with ingesta. May find a clean tongue.

Headache not aggravated at any particular time of the day.

Nearly always constipation.

No abdominal tenderness.

Pulse of good volume, moderately slow, and occasionally irregular.

No epistaxis.

Absent.

Typical fever curve ; gradual ascent, having low fever in the morning and higher in the evening.

Vomiting nearly always connected with curdled milk or repugnant medicine. Coated tongue.

Headache always aggravated, towards evening, when the fever ascends.

Diarrhœa, as a rule ; exceptionally, constipation.

Abdominal tenderness and tympanitis.

Pulse soft, rapid, and never irregular.

Often epistaxis.

ADVANCED STAGE.

Tubercular meningitis.

Irregular temperature curve or no fever at all.

Now the vomiting generally ceases.

Stupor is continual, patient not easily aroused, and immediately falls back again into his former state.

Obstinate constipation.

Typhoid fever.

Continued fever, stationary, or ascending gradually with the morning remission.

May have vomiting of ingesta.

Is easily aroused ; remains awake for a time and requests drink. Is usually rational during the time of being awake.

Generally diarrhœa, yellow or brownish stools.

Retraction of abdomen.

Tympanitis and tender abdomen.

Tache cerebrale ; sudden and spontaneous blushing of cheek, and of parts exposed to pressure.

Roseolar eruption.

Cheyne-Stokes breathing.

Breathing at times very irregular, quite sighing, but not the rythmical irregularity. One day regular and the next very irregular.

Pulse very irregular.

Pulse weak and regular.

Spleen normal.

Spleen enlarged and tender.

Local palsies and local spasms ; fixedness of the eyes unequal or dilated pupil.

No such manifestations.

Extreme tenderness elicited on pressing the femur.

No tenderness on pressure.

No albumen or indican in the urine.

Indican and albumen always present in the urine,

Albumen water for a drink is largely used by the French as a substitute for milk and beef-tea, when they disagree with the patient, or cannot be obtained. Dissolve the white of an egg in a pint of water. Sweeten with glycerine and flavor with orange flower water. It may be taken cold and used at pleasure. An excellent food in typhoid fever or typhoid dysentery.

Recently Dr. Guillassee, of the French Navy, has given coffee in the early stages of typhoid fever with marked success. Three (3) teaspoonfuls were given adults every two hours, alternating with one (1) or two (2) teaspoonfuls of claret or Burgundy wine. A beneficial result was immediately apparent.

M. A. Vulpian gives an account of the treatment of typhoid fever with salicylate of bismuth, a salt which is given in doses of thirty (30) grains three times a day. In typhoid

fever it seems to have the advantage only of lowering the temperature of the body without cutting short the duration of the fever.

For a long time he has risked the lives of his typhoid patients on turpentine, only this and nothing more. His formula is :

Sugar,	.	.	.	.	.	.	2 drachms.
Gum arabic,	.	.	.	.	.	.	2 "
Ol. turpentine,	.	.	.	.	.	.	2 "

Mix and thoroughly triturate in a mortar, and during the process slowly add four (4) ounces of cinnamon water.

The salt of quinia, which my observation has led me to prefer over all others, is the bisulphate, which from its solubility, would seem preferable, on theoretical grounds, to the simple sulphate. Experience confirms the theory. I give it in one (1) to three (3) grain capsules, not desiring to nauseate the already irritable stomach with a bitter and acid solution. If desired, a little lemonade or mineral acid drink may be given immediately after the capsules, but I do not insist upon it.

I think that observation will demonstrate that, in nine-tenths of the cases typically severe at the onset of the fever, if quinia be thus administered, not only will the temperature be fully controlled and held in check, but that the muttering delirium, the picking of the bedclothes, the coma vigil, the tympanitic abdomen, will be, if not entirely averted, at least greatly and most favorably modified.

Dr. F. B. McEwen, of Aberdeen, describes the plan which he pursued in an epidemic of typhoid fever, with very satisfactory results. It was as follows :

In a great majority of the cases, looseness of the bowels, with the characteristic evacuations, was present ; but unless the diarrhœa continued distressing he generally allowed it to go. When along with the looseness of the bowels there was restlessness and want of sleep, he found small, repeated doses

of Dover's powder most beneficial in subduing the diarrhœa and inducing quiet repose. In a few of the cases, instead of looseness there was constipation with tympanitic distension. The constipation he never tried to obviate, and the bowels always acted in good time. One case in particular, where the patient remained ten days without having her bowels moved, made a very good recovery. During the whole time there was tympanitic distention, and a continual discharge of flatus; but at the end of the ten days the bowels were moved naturally. He confined his patients almost exclusively to milk with a little lime-water or soda-water added. When the frequency of the pulse denoted great weakness of the circulation gave from half ($\frac{1}{2}$) an ounce to one (1) ounce of good old Scotch whiskey, three or four times a day; and the administration of this stimulant he invariably found to have a strengthening effect upon the action of the heart. Sponging the body once or twice a day with tepid water was agreeable and refreshing to the patients, and was generally followed by a sense of comfort.

Dr. H. T. Ferrell (*St. Louis Clinic Record*) says: The treatment of typhoid fever is quite satisfactory, the mortality in my experience barely exceeding two per cent. In the treatment there are three fundamental rules to be kept in view:

1. Put the patient to bed early, and enjoin the most absolute rest throughout the whole course of the disease. In all cases of doubt in the diagnosis, I advise the patient to take his bed. If it is not typhoid, rest is not apt to hurt him, and if it is, it may be the very means of saving his life. In every one of my fatal cases this rule was not observed. In two cases of death from perforation, one had been about with the fever on him for two weeks, the other three. In the one from hemorrhage, the young man tried for near three weeks to wear the fever out. I have lost no case where the patient took to bed early.

2. Early and judicious alimentation; by early I mean within the first forty-eight hours. The aliment should be highly nutritious, easily assimilated, in a liquid form, and given at regular intervals.

3. Use drugs only to meet indications, and with a well defined purpose and no longer than that purpose is subserved.

If the temperature runs high, use quinia and digitalis in large doses, sponge the surface freely and frequently with equal parts of whisky and water, to which may be added a little muriatic acid. To control the bowels and to correct the offensive odor of the discharges, bismuth and carbolic acid, or bismuth and liq. sod. chlorinati. For the vomiting, which is sometimes very troublesome, oxalate of cerium in ten (10) grain doses, or calomel in doses of the tenth ($\frac{1}{10}$) or twelfth ($\frac{1}{12}$) of a grain.

For restlessness or sleeplessness, codeia has answered my purpose best. For intestinal hemorrhage, hypodermic injections of ergotine, or what answers just as well, Squibbs' fluid extract of ergot. For great muscular or nervous weakness I have seen tr. nucis vomicæ, produce excellent results.

Homœopathic treatment

If at the commencement there is headache, giddiness, chilliness, aching in the back and limbs, with a slight cough, with or without diarrhœa, sickness at the stomach, and sometimes vomiting, give bryonia and rhus tox. alternately (turn about), a dose every two hours.

Make the patient go to bed, and if restless, give one (1) or two (2) doses of coffea or belladonna. As soon as the patient perspires, and these symptoms disappear, the patient gets better. If, however, the disease progresses, the symptoms become worse, aconite should be given, especially when the pulse is full, and skin hot and dry, with violent thirst. This should be given alternately (turn about), with belladonna, if with the above symptoms there are severe headache, sensitiveness to light and noise, and starting in the sleep.

If the symptoms increase in violence, give bryonia and rhus, again, alternately.

The other remedies are as follows :

Arsenicum.—The skin dry and yellowish, the eyes sunken, face shrunken, hollow and pale, cold sweat on the forehead,

lips dark and dry and cracked, teeth black, and covered with an accumulation of filth, abdomen swollen, breathing short and quick, voice low and muttering, burning heat at the pit of the stomach, nausea and vomiting, especially after eating or drinking, extreme prostration, and loss of strength.

Phosphoric acid.—Great weakness, the patient lying constantly on his back, talking in a random way, picking at the bed-clothes, with a fixed look, and eyes hollow and glassy.

Bryonia.—Face red and swollen, breathing difficult and short or sighing, lips brown and dry, mouth dry and coated with a yellowish fur, fullness and oppression in the head, worse on movement, buzzing in the ears, dryness in the throat, constipation.

Opium.—When there is great dryness, with breathing like snoring, low mutterings, discharges from the bowels and bladder passing away involuntarily.

Lachesis.—May be given for these same symptoms, especially if the tongue is dry and red, and shining as if varnished.

Hyoscyamus.—When the face is hot and red, eyes sparkling, twitching of the muscles, furious delirium, the patient having a desire to escape.

Carbo. veg.—This may be given in alternation with arsenicum, when the following symptoms are present: countenance pinched and sunken, face pale and dingy or yellow, eyes sunken and glazed, cold sweat, discharges from the bowels and offensive, heavy pressing or drawing pains in the head, rattling in the throat, cramp-like or burning pains in the stomach and bowels; bowels swollen and tender on pressure.

Rhus tox.—This remedy is appropriate in all stages of the disease, especially when the patient is stupid, and there are shooting pains in the head, dry burning heat, stiffness of the neck, with wandering pains which are increased by motion, diarrhœa, with chilliness and dizziness; dryness of the throat, pressure in the eyes, and sensibility to light and noise. If at any time the patient is sleepless, give coffea and belladonna alternately; every hour a dose.

If the skin is cold and clammy, and there are clammy sweats, give camphor, which should be alternated with *coffea* if the patient becomes restless.

After the fever is broken and the patient begins to recover, either *china*, mercury or sulphur, may be given.

Administration of remedies.

Dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and give a teaspoonful every half an hour, hour or two hours, according to the urgency of the symptoms.

TYPHUS.

There is, perhaps, no form of febrile disease, concerning which physicians have expressed a greater variety of conflicting opinion, than typhus fever. Long an object of the deepest interest and attention, it might well be presumed, that every circumstance calculated to illustrate its nature and remedial treatment, must have been abundantly noticed and accurately estimated. Whatever industry and carefulness of observation may have been bestowed on this subject, the result has not been very flattering, for even at this day, there exists great discrepancy of opinion concerning many of the most important points of its pathology and treatment. Without entering into a detail of the vague and arbitrary employment of the term typhus, in the writings of both ancient and modern physicians, it will be sufficient to state, *in limine*, that typhus is here regarded as a peculiar form of fever, capable of propagating itself by contagion—commencing often like synochus, (inflammatory fever ending in typhus), and passing into a state, characterized by a stunned or torpid condition of the sensorial powers, with great prostration of strength and delirium.

Symptoms.

Premonitory stage.—A peculiar uneasy sensation in the pit of the stomach, want of appetite, slight giddiness and nausea, pale, shrunken and dejected countenance, full and

heavy eyes, often tremor of the hands and a general feeling of weariness, debility and disinclination to mental and corporeal action. These premonitory symptoms usually continue from three to six days, terminating in those which mark the stage of invasion—viz: slight chills, alternating with flushes of heat; an entire disgust for every kind of food; tongue covered with a thin whitish fur; considerable nausea, and sometimes vomiting; a quick, small and irregular pulse; a confused and heavy sensation in the head, and increased mental and physical depression. This stage generally occupies from six to twelve hours, and terminates in the stage of excitement. The febrile heat now increases considerably, the face is slightly flushed, the pulse rises in strength and fulness, the skin becomes dry, the lips parched, there is considerable thirst for cool drinks, the tongue becomes more furred and slimy, the bowels are usually torpid, the mind is more confused, the patient fretful, restless and watchful, with an anxious expression of the countenance, the urine is small in quantity and reddish, the head feels heavy, much confused and vertiginous; during the first two days of this stage occasional manifestations of slight delirium occur during the night.

About the end of the second or during the third day of this stage, slight catharrhal symptoms usually supervene—such as suffused and injected eyes, moderately inflamed fauces, somewhat painful deglutition, more or less oppression in the chest, attended generally with a short dry cough.

Pains in the back, loins and extremities, are rarely absent in this stage, and in most cases a general soreness is experienced throughout the whole body. Towards the close of the third day of the stage of excitement, there are usually much giddiness and sensorial obtuseness present; the patient appearing, even at this early period of the disease, as if under the influence of some narcotic. The cerebral functions now become more and more disturbed, hearing becomes obtuse, delirium more frequent and considerable, and the general torpor gradually increases.

One of the most striking characteristic phenomena of

typhus is the almost insurmountable aversion to corporeal and intellectual exertion, manifested throughout nearly the whole course of the disease. The patient moves slowly, and, seemingly, with great reluctance, and his answers to question are hesitating, short and peevish. The stage of excitement generally continues about six or seven days, before it terminates in the stage of collapse, though this sinking stage sometimes supervenes at a much earlier period; and occasionally comes on a few days later. The occurrence of a collapse is manifested by the subsidence of the previous inflammatory symptoms, and the supervention of great prostration; feebleness and greater frequency of the pulse; a dry brown, and eventually black tongue; teeth and lips incrustated with black sordes; a stunned, confused and deranged state of the sensorial functions, with more or less constant, low muttering delirium; total apathy and indifference to surrounding objects; generally great difficulty of hearing; twitching of the muscles of the face, great difficulty of protruding the tongue, constant recumbence on the back, and gradual sliding down towards the foot of the bed from deficient muscular power; a peculiar biting heat of the skin and finally, in violent cases, dark spots or blotches on the surface, a deep guttural or sepulchral voice, hiccough and a tympanitic state of the abdomen. Tenderness of the abdomen to pressure, is one of the most common symptoms, in the latter periods of typhus. During the collapse, the urine is rather copious, pale and often foams like beer, when voided into a vessel; there is, generally, also a manifest tendency to diarrhœa in the latter periods of this stage, the discharges being watery, acrid and highly offensive.

When the disease proceeds to a fatal termination, the symptoms become more alarming, and now morbid phenomena are developed. The skin is covered with a viscid fetid sweat; the urine and fœces are passed involuntarily; the expectoration is dark colored and fetid; gangrenous sores form on the parts which have been subjected to pressure; the delirium is low and muttering; and the patient picks at the

bed-clothes; the dead rattle (as it is commonly called) is heard in the throat, and death takes place about the termination of the third week; frequently at an earlier period, rarely later.

The congestion or accumulation of blood in the principal internal organs, which always occurs to a greater or less extent in the course of this disease, frequently causes inflammation. The brain is more or less affected in every case, but inflammation only occasionally occurs, and then we are often unable to determine its existence. This complication is most frequently met with in young robust individuals, and is manifested for the most part during the first stage of the disease, sometimes within twenty-four hours from its commencement, by buzzing and other noises in the ears, severe pain in the head, throbbing at the temples, delirium, convulsive movements, etc.; sometimes nausea, vomiting, purging and pain in the bowels are the predominant symptoms. The danger is then not so great as in the preceding case. In other instances, pain in the chest, bloody expectoration, cough and difficulty in breathing, indicate inflammation of the lungs, or inflammation of the liver may be announced by an acute pain of the right side, a jaundiced appearance of the skin, etc. These affections greatly increase the danger, and they are the more to be dreaded because the extreme drowsiness and oppression of the brain, often prevent the patient from directing the attention of the practitioner to the affected organ, and often conceal their existence from ordinary observers.

Towards the termination of this stage, particularly when it tends to a fatal end, coma, more or less complete, is seldom absent, from which however, the patient may usually be roused for a few moments. The period of collapse generally continues from seven to nine days, terminating either in slow convalescence or in death. The occurrence of convalescence is announced by the appearance of a gentle and uniform moisture on the skin, a reduction of the acrid heat of the surface, a moist tongue cleaning along the edges, more copious and sedimentous urine, abatement of the delirium, and short intervals of repose,

and in some instances moderate diarrhœa. In some cases these phenomena of a favorable crisis do not take place until the seventeenth or even the twenty-first day, but in the majority of instances they occur about the thirteenth or fourteenth day of the disease. The progress of convalescence is generally tedious, and the debility both of body and mind, after the total subsidence of the fever, is always very considerable.

Such are the course and principal phenomena of simple typhus in its regular progress. Deviations and various irregularities do, indeed, frequently occur, even in the simple form of the disease, but they are seldom such as to efface the peculiar character or essential phenomena of the malady.

Typhus as above defined is readily recognized. It is distinguished from typhoid or enteric fever, by the character of the eruption, which in typhus is in dusky brown red spots, remaining out till convalescence, whilst in enteric it is in bright rose red points coming out and fading in successive crops; by the presence of the head symptoms; and by the absence of sickness, vomiting, diarrhœa and abdominal tenderness.

From meningitis or any acute cerebral affection, it is distinguished by the absence of excitement or of acute pain; by the character of delirium; by the dry coated, usually brown tongue; by the weak pulse; by the eruption and by the muscular prostration. From any chronic cerebral affection it is distinguished by the presence of fever, in addition to the above character.

The prognosis in typhus depends upon the severity of the symptoms, especially of the brain symptoms and of the muscular prostration. If there be much delirium or muttering incoherence, the prognosis is bad, especially if as is commonly the case, this be associated with a quick pulse (130 or over) such cases being usually fatal. On the other hand if the pulse be not over 100, if there be little confusion of ideas and if plenty of nourishment be taken, the case is a mild one and will readily recover. The indications from the rapidity of the pulse and from the cerebral symptoms do not,

however, invariably coincide ; and in that case the latter are the more to be regarded. Thus, if there be much incoherence, with indifference and prostration, and but little nourishment be taken, even though the pulse may not be over 100, prognosis is bad ; whilst, if there be little confusion and plenty of nourishment be taken, even though the pulse be 120, the prognosis though guarded is not unfavorable. The character of the pulse, as to weakness or otherwise, is of more value than the mere rapidity. If the pulse rise much, early in the attack, it is indicative of danger. The amount of the rash seems to be of little moment, and is no guide to the severity of the attack. If the tongue, after beginning to clean, becomes again furred, or if the pulse rise again after having fallen, it is significant of danger and points to the occurrence of some complication most commonly pneumonia.

Preventive treatment.

When typhus breaks out in a family, the first step to be taken is to endeavor to prevent the spread. For this purpose the patient should be isolated and placed in a large well aired room, with a single attendant as nurse, and as little communication as possible must be allowed with the rest of the inmates of the house. Amongst the better classes of society, this is easily effected ; but amongst the working classes an arrangement of this kind is usually impracticable and then the best course is the removal of the patient to a suitable hospital.

This removal should be effected at once, not only because the risks of the disease spreading is lessened by thus removing a source of infection ; but also because removing late in the disease is always injurious to the patient, and often dangerous. In this removal the patient should always be carried, and not allowed to walk even should he fancy himself able to do so.

Curative treatment.

Many attempts have been made by very various means

to cut short the disease, but of them it may be said, that all have failed. The principles of treatment is therefore to keep up and economise the strength by every means, until the fortnight shall have passed, when convalescence will occur of itself. For this purpose constant and careful nursing is essential. The patient should be kept absolutely in bed, and not allowed to rise, even in the early days of the attack, when he may fancy himself able to do so ; he should be fed at short intervals with liquid nourishment, especially milk and strong beef tea, or strong soups. These should be given to as great an extent as the patient can be induced to take them. The thirst should be relieved by diluents of any kind, such as plain water, barley water, effervescing drinks or diluted lemon juice. Taste being nearly gone, the patient will take them indiscriminately ; but it should be remembered that in serious cases he will not trouble to ask for them ; they should therefore be offered very frequently, and the nourishment should also be pressed upon him. The tendency to constipation is easily obviated by an occasional dose of castor oil. Care should be taken that the bladder is regularly emptied ; not that there is any real retention, for the patient can readily empty it if he makes the effort. Usually all that is required is to tell him to do so ; but sometimes, though rarely it is necessary to pass the catheter. Absolute quiet should be secured ; the patient should not be spoken to more than is absolutely necessary, no conversation should be permitted, if he talks in a rambling way, as is often the case, he should not be answered. For sleeplessness or delirium, the best remedies besides quiet, are darkening the room and applying cold wet cloths steadily to the head.

Cold applications frequently soothe the delirium and procure sleep. Opium and sedatives are ill borne and should never be had recourse to it.

Attention should be given to the position of the patient, especially in view of the possible occurrence of pneumonia, or occasionally, in spare and emaciated individuals, of bed sores. To avoid this, the supine position, which the patient

always assumes in serious cases, should from time to time be altered, and he should occasionally be turned over on the other side. He will not lie long thus, but will gradually slip round again on to the back; but the change of position even for a short time is useful. If pneumonia occurs, ipecacuanha in small doses should be had recourse to.

The following fever syrup has been found beneficial in removing the morbid excretions from the bowels. Give it, in twice its volume of milk or water, in desertspoonful doses, repeated until free action is obtained :

Syrup of rhubarb,	. . . . .	4 ounces.
Tincture of valerian,	. . . . .	2 ounces.
Oil of sassafras,	. . . . .	20 drops.
Piperin,	. . . . .	10 grains.
Sub. carbonate of soda,	. . . . .	20 grains.

Mix the piperin and oil of sassafras with the syrup, before the tincture of valerian is added, otherwise the compound will be so pungent that it can not be swallowed.

Much of the distress experienced in fever arises from irritation of the spinal marrow; from the back itself not only complaining, but pains and distress of various kinds are felt in different parts, which have their origin in spinal irritation, and can be relieved in a few minutes by the right kind of local application to the spinal column. I have used various compounds for this purpose, such as camphor and turpentine, volatile liniment, etc., but by far the best that I have ever tried, not only for this purpose, but also for pain or aching of the head, distress of the stomach, or in fact any other distress of whatever kind or wherever seated, so it be of nervous origin, is the following :

Sweet spirit of nitre,	. . . . .	4 ounces.
Ammonia aqua,	. . . . .	1 ounce.
Oil of juniper,	. . . . .	$\frac{1}{2}$ ounce.
Oil of sassafras,	. . . . .	$\frac{1}{2}$ ounce.

Camphor gum,	. . . . .	1/2 ounce.
Chloroform,	. . . . .	: 1 ounce.

Teaspoonful doses may be taken as often as the nature of the case requires.

When the chloroform is not at hand, ether answers pretty well. But sometimes the syrup, given in any way, becomes repulsive to the stomach, which renders it imperative to devise some other form in which to administer the remedies. The following pill constitutes a good substitute :

Pulverized rhubarb,	. . . . .	30 grains.
Pipirin,	. . . . .	10 grains.
Valerinated zinc,	. . . . .	10 grains.
Extract of liquorice,	. . . . .	10 grains.
Oil of Sassafras,	. . . . .	20 drops.

Make thirty (30) pills, put them in capsules, and give at the same intervals as the teaspoonful of syrup, viz., once in two or three hours.

YELLOW FEVER.

Yellow fever has been a theme of interminable discussion and controversy. But the facts apparently are not only in full conformity with the axiom, that yellow fever epidemics occur and prevail during the hot seasons, and in hot climates, but they also prove the incorrectness of the statement of a class of writers, namely, that the fever does not occur elsewhere, unless the annual mean temperature is from 64° to 67° F. (23° to 25° C). The data of the epidemic in 1878 prove, as to territorial diffusion and annual mean temperature, that the fever originates and prevails under the 54th isothermal line, however, that only places that are favorably located are orographically affected in this thermal latitude, owing to local climatological perturbations, and to peculiar typographical configurations. As a fundamental law the conclusion is reached from the data of past epidemics, and especially supported by

the comparison of the meteorological data of the five years, that climatic extremes prevail during the summer of the previous year or during the spring season, and early part of the summer of the same year. Of the meteorological condition forming climatic extremes (or the basis of atmospheric variations favorable to the etiology of epidemics in general) are the following elementary influences, viz : reduction of atmospheric pressure (barometrical minimum), elevation of temperature and diminution of rain fall. Relative humidity, direction and velocity of wind, clearness or cloudiness of the sky, etc., are of secondary importance. At a locality, or in a region where an epidemic originates and prevails, either all three of the above-named elementary influences may supervene or two confined, but one of them is always found and is consequently of proportionate intensity. True all the localities, or the yellow fever area, of those epidemics, with which we have to deal here, are found within the indicated degrees of latitude, viz : on the western hemisphere 43° North and 33° South latitude ; on the eastern hemisphere, 42° North and 8° South latitude, for we find Cincinnati, O., the furthest point North and is still in $39,07^{\circ}$ latitude.

Elsewhere possibly we shall have occasion to indicate that yellow fever prevailed, in an altitude of 14,000 feet, where commercial highways were lacking.

In the United States the fever originates and spreads with the same conditions that it does in the West-India Islands. Here, as there, are series of years where a perfect "immunity" is observed ; and on the contrary there are years in which yellow fever cases spontaneously manifest themselves ending in destructive epidemic. These conditions have been demonstrated not to be dependent upon police or quarantine regulations, nor importations of the poison.

Morbid conditions.

Of all morbid conditions by which yellow fever is recognized, the yellow discoloration of the integument has excited the greatest interest and attention, for the reason that its presence

is admitted as *prima facie* evidence of the existence of the fever. The morbid anatomy of the cutis does not afford a clue ; no particular lesions are met with. The evidence could hence, not be produced of what the coloring matter consists which, by virtue of the " specific poison of infection," should have been deposited there, and even the attempts have not been made to advance a rational explanation of the phenomena.

The ejection of " black vomit " is no longer considered pathognomonic of yellow fever.

Liver.

This organ deserves first mentioning, as in it the primary steps take place towards developing the yellow fever, owing to the interruption of its function from mere physico-mechanical influences. In the post-mortem of 551 cases, Beranger Feraud relates the morbid alteration of the liver in 473 cases which were specially examined, 25 presented vascular turgescence, 30 structural enlargement, 22 were yellow and gorged with blood, the rest were brittle and bloodless, and presented a great variety of discoloration.

In the following summary there are found five different modes of origin of the yellow discoloration, viz :

1. Pressure upon the biliary vessels by which the bile is forced into the blood and lymphatic vessels.
2. Pressure upon the portal vein, thereby causing a development of an undue amount of carbolic acid gas in the blood, resulting in a subsequent yellow discoloration of the cutis.
3. Pressure upon the navel string, thereby producing the same effects in the portal circulation as by pressure upon the portal vein of the adult.
4. Attenuation of the blood by water and gases (carburated hydrogen with ammonia and sulphuretted hydrogen,) producing the chromatical reflex, in the blood of the yellow color.
5. Decomposition of the hæmoglobine of the blood corpuscles in consequence of contusions, forming bilious coloring

matter in the extravasated blood when entirely disconnected with the hepatic circulation.

Kidneys.

Not always are these organs found morbidly altered. The principal morbid changes, uniformly observed, are said to be general enlargement and congestion of the cortical portion, especially where the cases terminated fatally after a short duration ; in other cases a fatty granular degeneration was observed, involving all tissue elements, some times cysts were found, at other times evidences of long preceding interstitial nephritis.

Spleen.

Summers found it always markedly and characteristically altered, its lesions being of uncommon prominence, and although resembling those found in common with other febrile affections, yet they were sufficiently well defined. Summers found the spleen greatly hypertrophied, its parenchyma distended and the malpugian bodies swollen—many of them ruptured. The chief characteristic was that in yellow fever the spleen is soft and swollen with a thin and tense capsule which is sometimes even ruptured, while in intermittent the organ is indurated and forms what is denominated the ague cake, hence rather hard.

The “hæmatogenic icturus” cannot be precluded, its occurrence is too intimately embodied with the pathological chemistry ; or that of yellow fever. The evidence is now so fully presented, and is in its bearings so entirely conclusive, that nothing should restrain us any longer from announcing the fact. There is nothing peculiar or inexplicable in the discoloration of the tissues in yellow fever. As we have seen the same discoloration results from various causes, and is present in various conditions and in different affections, yet it has its origin in common, namely : In the composition of hæmoglobine transforming into biliary coloring matter, and in the physical chromatic reflex. In yellow fever the origin of

the discoloration can only be recognized as the result of physical influences manifested firstly, by the pressure upon the biliary vessels; secondly, pressure upon the portal vein; thirdly, attenuation of the blood by gases; and fourthly, decomposition of hæmoglobine, forming regressively, biliary coloring matter extraneous to hepatic connection.

Causes.

Those which predispose a person to an attack of the yellow fever are, intemperance, a full plethoric habit of body, intense hot and sultry weather, and exposure to night air or cold.

The exhalations arising from vegetable matter under a state of decomposition, or marsh effluvia, as they are termed by professional men, may, under a deranged state of the atmosphere, from great preceding heat and draught, have given rise to this species of fever in the West Indies, particularly in persons habituated to a cold or temperate climate. It is also an unsettled point whether or not it is of a contagious nature. It is probable that it is communicable from one person to another, or is contagious in an impure or deteriorated atmosphere, where many sick are lodged together in one room, and where there is at the same time, a neglect of cleanliness and proper ventilation; but where there is a free admission of pure fresh air, and a proper attention is paid to strict cleanliness in every respect, its contagious properties may be so diluted as to become harmless, and incapable of being communicated to another person from the one laboring under it.

The yellow fever differs from typhus in the following circumstances, viz., it usually prevails only during or immediately after very hot seasons, in which the typhus is soon extinguished; and it is in its turn, completely annihilated by cold weather in which typhus is most prevalent, if accompanied by humidity in the atmosphere.

Our opinion, as to the event of the yellow fever, must be drawn from a careful consideration of the age and habit of

the patient, the mode of the attack, and the nature of the symptoms. The danger will be in proportion to the full and robust habit of the patient. • Extreme debility, severe and incessant vomiting of dark or black matter, the sudden oppression of all the functions, tremors of the body when moved, dilatation of the pupils of the eyes, with great stupor, pensive sadness in the countenance, a weak irregular pulse, highly offensive breath, black and fetid discharges by urine and stool, and the appearance of purple or livid spots dispersed over the body, all denote that the life of the patient is likely to fall a sacrifice to the disease ere long. On the contrary, a considerable diminution of the affection of the head, a lively appearance of the eyes, free perspiration, a return of natural rest, the pulse becoming fuller and more regular, a gentle purging arising, or the urine becoming very turbid and depositing a copious sediment, and the stomach at the same time perfectly tranquilized, are to be considered in a very favorable light. The disease is apt, however, to exhibit deceitful appearances, and appears at times to be going off, when a sudden change takes place for the worse, and carries off the patient

In view of all the researchs upon this subject, it is best to observe the following prophylactic, or preventive measures:

Removal of all nuisances, thorough ventilation and fumigation of narrow courts, cellars, docks, holds of ships, etc. Cleanliness on board ship, pumping out of foul bilge water. For there is no doubt that yellow fever may be introduced into seaports in ships. Unquestionably, a pestiferous miasm may, under favorable circumstances, be generated in the holds of ships while navigating in hot climates which, when suffered to escape at the wharves, may give rise to the disease.

When the miasmata are thus introduced, however, the disease engendered by it will not prevail epidemically, but only among those who approach the infected vessel or the cargoes, and will disappear entirely when these are removed to a distance.

Individuals exposed to risk, should live on plain nourish-

ing food, avoiding the abuse of alcoholic drinks and sexual excesses ; have a due amount of sleep, promote healthy action of skin, kidneys, intestinal canal ; have warm clothing ; not to venture out early in the morning with the stomach empty ; should avoid the night air, for the influence of the remote cause of this form of fever is greatly promoted by intemperance, excessive exercise in the sun, exposure to a cold and damp night air, and, in short, by whatever is capable of debilitating either the whole system, or deranging important organic functions.

Symptoms.

There is no form of fever more variable in the violence and character of its symptoms than this. In the seasoned and acclimated inhabitants of those regions where the disease is epidemic, it is as mild as ordinary bilious fever. But in the young and robust, who have not yet been seasoned to the climate, it seldom fails to make its attack with an overwhelming force ; commencing and terminating in death often within forty-eight hours, and sometimes sooner.

The disease usually begins with a sudden feeling of giddiness, pain in the back, loins and extremities, faintness and debility, with slight creeping chills and nausea. After a period varying from a few to twelve hours, these symptoms are succeeded by a sudden development of vehement arterial reaction, accompanied with a dry and intensely hot skin, flushed face, red eyes, extreme headache, tormenting thirst intolerance of light, pain in the loins and lower extremities, sensation of weight and tension at the stomach, white and sometimes clean tongue. Towards the end of the first twenty hours of fever, the patient begins to vomit frequently, particularly after taking drinks. The ejections consist, at first, of such fluids only as may have been taken into the stomach ; but after these have been thrown off, bile, often in abundance, is brought up, varying in color from pale yellow to dark green, and frequently so acid as to excoriate the fauces and lips. The heat and tenderness in the epigastrium now in-

crease, the countenance assumes an indescribable expression of distress and hopelessness ; there is great restlessness and sighing, and more or less delirium usually supervenes. In some cases slight pain is experienced on swallowing ; “ and about this time an urgent sensation of hunger often comes on, and a remarkable want of power in the lower extremities, resembling partial paralysis.” This paroxysm lasts, commonly from twenty-four to thirty-six hours, but in some instances considerably longer ; and then all the symptoms with the exception of the nausea and vomiting, greatly abate—the pulse returning to its natural standard, and the skin acquiring a moist and temperate condition. So complete, indeed, is the remission in some cases, that the patient is induced to flatter himself that all danger is now passed. More commonly, however, the patient remains in a state of tranquil indifference, amounting to a sort of stupor, without any apparent concern as to present or future situation. This is an ominous calm ; for, after a few hours, the pain and burning sensation in the stomach return with increased violence ; the vomiting becomes frequent and distressing—the fluid brought up containing minute flakes or flocculi, resembling the crust washed from a port-wine bottle, but little or no bilious matter. The desire for cool drinks is extremely urgent, but everything which is swallowed is immediately rejected by the stomach with great force. The eyes and skin about the neck and breast now acquire a yellow hue. This second paroxysm continues, commonly, from twelve to thirty-six hours, and is succeeded by a new train of symptoms, which mark the last or third stage of the complaint. The pulse now sinks in frequency, force and volume ; the tongue is dark-brown or black ; the vomiting becomes almost incessant, and exceedingly forcible, the matter thrown up consisting of a black ropy fluid resembling coffee grounds suspended in a glairy liquid. The extremities become clammy and cold ; and the acrid or burning sensation in the stomach acquires a most distressing degree of violence. Diarrhœa usually occurs at this period—the discharges being green or black ;

“and the patient often complains of being unable to pass his stools, or a want of power in the abdominal muscles.” By this time the whole surface of the body is of a dirty yellow color; and hiccough, hemorrhages, violent delirium, coma, insensibility or convulsion, sooner or later terminate the patient’s sufferings in death.

Such is the ordinary course of this fatal malady. In many instances, however the attack is much more overwhelming; the patient being seized at once with loss of muscular power and general oppression of the nervous system—falling down as stunned with a blow. In some cases a violent and furious delirium or mania ushers in the disease, terminates in a few hours in insensibility and convulsions. Sometimes the disease commences and proceeds to a fatal termination in so insidious a manner, that the patient himself and those about him are scarcely aware that he is much indisposed. In such cases there is, however, always a remarkable change in the expression of the patient’s countenance, as well as his usual temper and habits. In almost all instances of this disease, the countenance is expressive of intense anxiety and despair during the early period, and of gloomy or sullen abandonment in the last stage.

The period at which the skin begins to assume a yellow color, is very variable. It sometimes occurs within the first forty-eight hours, and sometimes not until the fourth or fifth day. Various opinions have been expressed with regard to the immediate cause of this yellow hue of the surface. Some ascribe it to the serum rendered yellow by dissolved red globules of the blood, and effused under the cuticle. Dr. Fordyce attributes it to the superabundant secretion of sebaceous matter by the glands of the skin; and Dr. Saunders supposed it to depend on a peculiar state of the lymph in the subcutaneous cellular tissue. Many, however, maintain, and with correctness, I think, that the yellow hue in question is of an icteric character, depending entirely on deposition of bilious matter under the cuticle. An opinion based on reasons given above.

The black matter thrown from the stomach in the latter period of this disease, does not consist of bile, as we once generally supposed, but of minute flakes of coagulated blood suspended in the gastric mucus, produced by sanguineous exhalation from the abraded surface of the mucous membrane of the stomach. The black matter discharged in some of the higher grades of bilious and typhus fevers differs essentially from the "black vomit" of yellow fever. The former will dissolve in water, and communicate a bilious tinge to it; whereas the black matter which forms the "black vomit" of this disease, consists of small insoluble flakes which are held suspended in a viscid fluid, and will not communicate a yellow or greenish tinge to water when agitated with it. "In taste also they differ. The black matter which occurs in common bilious fever, is always intensely bitter; but that which is thrown up in yellow fever is either insipid or acid.

Mr. Lyon, staff surgeon in the Island of Dominica, says that the black matter ejected from the stomach in yellow fever is invariably very strongly acid.

He ascribed the black color of the blood to the action of muriatic acid on it, for it is this acid, which according to the investigations of Prout and others, is secreted by the stomach in a state of disease. "Having made the experiment of adding muriatic acid to blood, the color of the blood was instantly changed to a deep black, and when diluted with water, presented a liquid, which I should have declared, from mere inspection to be "black vomit."

Treatment.

The good effects resulting from cold effusion in this fever, are such that it ought to be employed at a very early period. Cold water, when applied externally, where the patient is distressed with the sensation of burning heat, generally affords very great relief to his feelings. It is only, however, when the temperature of the skin is raised considerably above the natural standard, that cold water should be applied ex-

ternally to the body by affusion, or even by wetting it with a sponge dipped in water and vinegar; and the period of its application, and the frequency of its repetition, must be regulated by the feelings of the patient; for should he become chilled by the application, much injury might ensue.

For the purpose of avoiding fatigue to the patient, which the preparation for cold affusion is likely to induce, it has been recommended that he should be covered in his bed, with a single sheet wetted or wrung out in cold water, as this will reduce the heat of his body very considerably by the evaporation which takes place.

Where neither of these modes of applying cold water can be employed with convenience or safety to the patient, we ought to be content to substitute the wetting of the hands, face, and other parts of the body, with a sponge dipped in vinegar and tepid water.

Some benefit may possibly be derived also from cold water, taken inwardly for drink, as the heat of the body, thirst, and severity of the fever, have, in many cases, been moderated by frequent and small draughts of it.

Mercury has been employed with great benefit at an early stage of the yellow fever; when regulated so as to affect the mouth, and excite some degree of salivation. In some cases calomel has been given with this view to an almost incredible extent before any spitting took place, even when assisted by rubbing in strong mercurial ointment at the same time. From the well established efficacy of mercury in affections of the liver, it may probably be a proper and valuable remedy in the early stage of the yellow fever; but when the distressing and dangerous symptoms of the second stage have made their appearance, mercury would greatly aggravate them and thereby destroy life the quicker.

If we determine on having recourse to mercury at the onset, or very early in the disease, we may give it combined with opium, by forming from two (2) to four (4) grains of calomel with the fourth ($\frac{1}{4}$) of a grain of opium and a sufficient quantity of honey, or thick syrup, into a pill, which is to be

taken immediately, repeating the dose every four or six hours. To assist the effect of the remedy in producing, as quickly as possible, a slight degree of salivation, we may at the same time direct half a drachm, or a whole drachm, of strong mercurial ointment to be rubbed into the thighs, hams, legs and arms, every six hours; but as soon as a gentle spitting has come on, the use of mercury in any shape must be discontinued.

Some physicians have considered a use of mercury, in this fever, so as to produce any degree of salivation, as extremely equivocal in its operations; and they think that its good effects have been much exaggerated. They are, however, of the opinion that it may, and does, prove essential benefit as a purgative, and therefore, that it may be given to clear the bowels of feculent matter, as the occasion shall require, throughout the whole course of the disease.

If we are fortunate enough to obtain perfect remissions, we should immediately administer the Peruvian bark in substance, if the stomach will bear it; but if not, we must be content to substitute some lighter preparation of it, such as the infusion or decoction, persevering in the use of the medicine throughout the whole stage of convalescence, which is usually long and tedious. A few drops of the muriatic or diluted sulphuric acid will much increase the efficacy of the bark; and should any uneasiness of the stomach or bowels arise, or purging be excited, we may add six (6) or eight (8) drops of the tincture of opium to each dose of the bark and acid.

But should the fever resist our best endeavors to subdue it and no perfect remissions be observed, but, on the contrary, run its course with violence and great exhaustion of strength, thereby threatening approaching, if not already apparent, symptoms of putrescency, the aid of the most powerful antiseptics must be called in. On some occasions a use of spirituous baths has been added.

Throughout the whole course of the disease the strictest attention must be paid to cleanliness in every respect. The

linen of the bed, as also that of the body, should be changed frequently; whatever is voided by urine or stool, should be immediately removed, and the chamber of the sick be kept perfectly cool and properly ventilated, by a free admission of fresh air into it. It may also be sprinkled now and then with a little warm vinegar. To assist in correcting any fetid smell, we may make use of the gaseous fumes arising from the muriatic or nitric acids.

At an early period of the yellow fever, the patient should be confined to diet of a mild nature, consisting of preparations of arrow-root, sago, barley, etc.; but as the disease advances, his strength must be properly supported by animal broths made of lean meat, such as beef-tea, veal or chicken broths, somewhat thickened by an addition of crumbled bread, oat-meal or barley.

Yellow fever, says Joseph Jones, is a "self-limited" disease and cannot be arrested by doings. Every case should be regarded as serious, however slight the symptoms may appear, and on account of the structural alternations in the blood and organs the closest medical attendance and careful nursing are required. Since so many of the symptoms are due to arrest of the functions of the skin and kidneys, effort should be directed to promote the activity of these organs during the progress of the disease. Steinhart says, diuretics should as a rule be avoided, but benefit often follows the free use of hot mustard foot baths, vapor baths and sometimes warm baths. Large draughts of lemonade decoctions of orange leaf and sage tea, and water charged with carbonic acid have a beneficial diuretic effect. Absolute rest in the recumbent position must be maintained. The necessity for this is especially indicated by the cardiac weakness, fatal result having followed rising from bed and walking during the period of calm. Free ventilation, avoiding, by sufficient clothing sudden changes of temperature is important. In many cases the above treatment with the continuous attention of an experienced nurse is all that is required.

When there is threatening of black vomit, ice should be

swallowed, and bags of the same applied to the pit of the stomach. During the period of the calm, active medication should be abstained from. The diet should still be of the simplest, most nutritious, and most digestible character.

In this stage there is often a morbid craving for food, and relapse and death have been the result of the indulgence of the appetite.

For the great prostration and feebleness the following may be given :

Sesqui-carbonate of ammonia,	. . . . .	1 drachm.
Chloride of potash,	. . . . .	2 drachms.
Laudanum,	. . . . .	1 drachm.
Cinnamon or peppermint water,	. . . . .	12 ounces.

A tablespoonful should be given every hour.

Or at the commencement of the attack, an emetic of the compound powder of lobelia may be given, after which the bowels should be emptied with the following, which has been highly recommended :

Vinegar and castor oil, each,	. . . . .	$\frac{1}{2}$ wineglassful.
Salt,	. . . . .	1 teaspoonful.

Mix, for a dose, and repeat every hour until it operates.

To allay the fever, cold water may be applied to the surface of the body, and it is recommended that the patient be placed in a tub, or some other convenient vessel, and large streams of cold water poured on the neck and body until the face become pale, after which the patient should be rubbed briskly and placed in a warm bed. During the cold stage of the disease, apply a large blister over the stomach, and give the following :

Podophyllin,	. . . . .	1 grain.
Leptandrin,	. . . . .	2 grains.

Mix in a mortar with ten (10) grains of white sugar, and take at one dose; repeat it every four hours. This will allay the vomiting.

If the chill continues for a long time, put the patient into a warm bath, in which mustard should be mixed, and mint or sage teas drank to cause perspiration.

Dr. Nott, of Mobile, recommends creosote to be given during the fever; after the bowels have been opened, twenty (20) drops of creosote to six (6) ounces of spirit of mindererus, with alcohol enough to dissolve the creosote. Give a tablespoonful every two hours. Sponging the skin with cold water and vinegar, will relieve the heat and dryness. Mustard poultices may be applied along the spinal column.

During the stage of remission or collapse, quinine should be continued; oil of turpentine has also been found useful in this stage of the disease. Give ten (10) or fifteen (15) drops with two (2) or three (3) grains of capsicum in lemonade or other acid; drink every hour or two.

If the patient is very much prostrated, the following may be given:

Brandy,	.	.	.	.	.	.	4 ounces.
Sulphate of quinine,	.	.	.	.	.	.	$\frac{1}{2}$ drachm.

To which one (1) or two (2) ounces of oil of turpentine may be added, if necessary. Give a tablespoonful every half hour or hour.

As the patient recovers, great care must be taken to prevent a relapse. The diet should consist of prunes, tamarinds, or apple water. Strong beef tea, indianmeal gruel, boiled rice and other light articles of food may be used: As a tonic, the cold infusion of Virginia snake-root or, an infusion of shrubby trefoil may be given.

Sulphate of quinine may be given in doses of from four (4) to six (6) grains, every hour or two. Lemonade and cider vinegar should be freely drank. If the stomach cannot retain it, give the following:

Sulphate of quinine,	. . . . .	12 grains.
Tartaric acid,	. . . . .	12 grains.
Lemonade or lemon juice,	. . . . .	1 ounce.

Use for an injection every hour or two.

Dr. Lecaille has recently called attention to the favorable results which he has obtained in twelve cases of yellow fever from the use of carbolic acid administered internally and hypodermically. He was led to try his remedy inductively, believing that yellow fever is essentially a zymotic disease. In one case which he records, the dreaded and generally fatal symptom of black vomit had already appeared. He injected subcutaneously one hundred (100) minims of a five per cent. solution, and administered a julep composed of carbolic acid and carbolate of ammonia, supplemented by enemata of sulpho-carbolate, at intervals of two hours. This treatment is generally successful within three days, but may be continued to the seventh.

Homœopathic treatment.

When the first symptoms appear, ipecac should be given immediately, especially when there are dizziness, chills, pains in the back and limbs, uneasy sensation in the stomach, with nausea and vomiting.

Belladonna.—Redness and bloated appearance of the face, eyes bright and sparkling, or fixed and glistening; tongue whitish, yellowish or brownish; dry, burning heat; sharp darting pains in the head with throbbing painful heaviness, and cramp-like pains in the back and limbs, pressure, cramp-like pains in the stomach, inclination to vomit or violent vomiting during the remission, melancholy, dejection. When reaction comes on, great agitation and continual tossing and anguish.

Bryonia.—Skin yellow, eyes red or dull, glassy or watery, tongue dry and covered with white or yellow coating, severe pain in the stomach, with vomiting, particularly after drinking, burning, thirst, pain in the back and limbs, headache aggrav-

ated by motion, eyes painful on motion, sense of fulness and oppression at the stomach and bowels, anxiety, with dread and apprehension, loss of memory.

Aconite is the most direct and positive remedial agent in the early stage of yellow fever. Intense fever, burning hot skin, very rapid pulse, great pain in the head and back.

Sulphuric acid.—Suppression of urine, tongue coated with thick white fur, or dry and brown mucus, great inclination to sleep or restlessness from nervousness, sense of fatigue, rapid loss of strength, violent vomiting of mucus and bilious matter, burning pains and tenderness of the stomach, coldness of the arms and legs with cramps.

Veratrum.—Face yellowish or bluish, cold and covered with cold perspiration, eyes dull, yellowish and watery, lips and tongue dry, brown and cracked, hiccough, coldness of the hands and feet, discharges from the bowels, loose, blackish and yellowish, trembling, cramps in the feet, hands and legs, great loss of strength, difficulty in swallowing, and intense thirst, vomiting of green bile or mucus, or black bile and blood, cramps in the stomach, bowels and limbs.

Sulphur.—Face pale or yellowish, pulse hard, quick and full, dizziness and sharp pains in the head, itching or burning pains in the eyes, roaring in the ears, pains in the back and loins.

Administration of remedies.

Give six (6) globules at a dose, or dissolve twenty (20) globules in half a tumbler of water, and give a dose every half hour, hour, two or three hours, according to the urgency of the symptoms.

Accessory treatment.

At the commencement a hot mustard foot bath for twenty minutes, throughout strict maintainance of the horizontal position. The plentiful allowance of ice or ice water, the applications of cold water bandage to the abdomen, continued even for days, the propriety of nourishment and stimulants in the

second stage by pure cream or by beef-tea injections, after the injections of brown matter by iced Champagne, the necessity of free ventilation and of close watching, particularly between midnight and day break. Ice water injected for deadly nausea, mesmeric passes for nervous irritability and restlessness, and, lastly, the energetic use of friction with hot oil in apparently desperate cases.

INFLAMMATION OF THE SPLEEN (*ague cake*).

Like the liver, the spleen is also subject to a chronic inflammation which often happens after agues, and is often called ague cake.

It is probable, however, that this condition is rarely the consequence of inflammation—being the result, generally, of great and protracted sanguineous congestion of this organ. During the cold stage of intermittents, the spleen always becomes greatly engorged with blood, and when this disease continues a long time, enlargement, induration and sometimes a complete disorganization of this organ take place. Three cases of intermitting fever which was known to terminate fatally during the cold stage, the spleen was found so much distended with blood and its structure so much altered, that it resembled a mass of dark uncoagulated blood, which was broken down by slight pressure of the finger. This state of the spleen is attended with great increase of its vascularity; whilst little or no morbid change usually occurs in its proper substance. One of the most singular facts in the pathology of the spleen, is the very rapid manner in which enlargement of it takes place; and the equally rapid manner in which it subsides.

Chronic inflammation of the spleen is a very common affection, especially in countries which are subject to ague and fever.

Symptoms

There is a feeling of weight, tightness and pain in the left side.

The following symptoms generally accompany enlargement of the spleen. There is little or no pain complained of by the patient; "the appetite is usually good, yet the powers of assimilation are obviously deficient; the patient loses flesh; is incapable of any muscular exertion; his features have a dark, bilious or mahogany hue, but the conjunctiva preserves a white and healthy appearance; perspiration is in time wholly suspended, and the skin acquires the appearance and feel of satin; the lips are pale, and there is generally much wasting of the gums; the urine is limpid, and secreted very rapidly, but contains little or no urea. The patient's mind is desponding and morose; and there is coldness of the lower extremities.

Treatment.

The treatment should be similar to that for acute and chronic inflammation of the liver. The chronic form should be treated with external applications of mustard plaster, tincture of iodine or croton oil over the region of the spleen.

The following should be taken internally.

Pulv. Peruvian bark,	. . . . .	1 ounce.
Pulv. rhubarb,	. . . . .	$\frac{1}{2}$ drachm.
Pulv. muriate of ammonia,	. . . . .	1 "

Mix, and divide into eight powders. Dose one (1) powder three times a day. To regulate the bowels, and keep them well open, the following may be taken:

Podophyllin,	. . . . .	4 grains.
Leptandrin,	. . . . .	8 "
Quinine,	. . . . .	8 "
Ext. nux vomica,	. . . . .	2 "

Mix, and make into sixteen (16) pills. Dose two (2) or three (3) pills at bed-time.

Perhaps the most effectual remedy we possess for the re-

moval of enlargement and induration of the spleen, arising from miasmata or intermitting fever, is iodine. I have employed it in one case, of long standing, with decided advantage, after mercury, the muriate of ammonia, antimony, etc., had been unsuccessfully used. From eight (8) to ten (10) drops of the tincture of iodine should be given three times daily, and a mild unirritating and digestible diet enjoined. We may also use the iodine in the form of frictions over the left hypochondrium ; but I apprehend the internal use of it will, in general, prove most effectual.

The preparations of iron are useful in this complaint. I usually give it in the form of tincture, twelve (12) or fifteen (15) drops three times a day in half a tumbler of water. Particular attention must be paid to the skin and general system. A sponge bath in tepid water to which soda has been added must be had daily, and the diet generous.

Homœopathic treatment.

In enlargement of the spleen resulting from ague—the choice of remedies lies between podophyllin, leptandrin, iris, mercurius and phosphorus.

The diet should be as light nourishing and easy of digestion as the particular nature of each case demands, and administered often during the interval. For the first day or two avoid animal food ; a meal must not be taken within two or three hours of an expected attack.

Remove if possible from an anguish district. Hot tea or hot wine whey may be taken freely.

CATARRHAL FEVER OR INFLUENZA.

Influenza or epidemic catarrh, has generally been observed to commence suddenly, with chills or shivering, alternating with flushes of heat, loss of appetite, great lassitude and debility. These symptoms are soon followed by pain and a sensation of weight in the forehead, sneezing, a copious discharge of thin acrid fluid from the nostrils, a sensation of rawness along the course of the wind pipe, hoarseness and

dry cough. To these are conjoined anxiety and a feeling of oppression about the chest ; pain in the back and knees, shooting pains in different parts of the body and limbs ; quick weak pulse and moist tongue, covered with white mucus.

The abruptness of attack, the extraordinary debility, the severe headache, accompanied with giddiness, and the flying pains in the back, knees and various parts of the body, distinguish this affection from common catarrh.

The primary symptoms of influenza, are much the same as those of ordinary catarrh. The patient has a sense of tension in the forehead ; his eyes become watery, and he sneezes. Discharge from the nose, cough and oppression at the chest, soon ensue. But the chief characteristics of influenza are a dull pain in the forehead, which is very oppressive, and an extraordinary prostration of strength, with mental depression, listlessness, indisposition for the least exertion and utter want of appetite. The skin is generally moist and the perspirations which occur are not critical as they seem to be in certain cases of fever. As the disease advances, the discharge from the nose irritates the upper lip, so as to make it red and tumid, the sense of taste is in general impaired. The disease usually lasts four or five days, and, when it subsides, the patient not unfrequently finds himself as much weakened as if he had gone through a long fever. Weeks often elapse before he has regained his original tone and vigor.

Such is influenza, as it generally shows itself ; but it varies a good deal in different epidemics. Sometimes the symptoms have not exceeded those of a common cold, and hardly any death can be traced to it ; at other times, in addition to severe headache, there are piercing pleuritic pains of the side, associated with inflammation of the lungs. Fever runs high, and there is nightly delirium. Under such circumstances, many patients are carried off. It is remarkable that the very young and the very old are less liable to the disease than the strong and the middle-aged ; but when the disease seizes the aged, or those debilitated by other diseases, they often die from its effects.

That influenza does not depend on weather is very plain, It has broken out at all seasons of the year, and when the temperature has been at both extremes, and it has advanced in a particular direction in the teeth of prevailing winds.

The suddenness of attack is sufficient to prove that influenza, even if it be infectious, which is doubtful, is not propagated essentially by infection. It is ascertained that a person who has suffered from influenza, derives therefrom no immunity from being attacked in a succeeding epidemic of the disease.

Influenza generally attacks a large proportion of the inhabitants of a country which it visits. Women are less liable to it than men, probably on account of their being less exposed to the weather. The ages between ten and sixty supply most cases. The low parts of towns are more seriously affected than the higher and better drained parts.

Whatever may be the exact nature of the cause which produces the disease, it is certain that it progresses in definite directions. The East seems to be the home of epidemics. It is from that quarter that cholera travels, until it reaches western countries like ours. Influenza pursues a like course, and the ocean, as we shall see, presents no barriers to it. After having pervaded Europe, it usually passes over to America, beginning at the parts nearest to the Old World from which it started.

We possess details of many well marked visitations of influenza. Some of the most remarkable were those of 1580, 1732, 1803, and 1836.

Epidemics in obedience to some unknown laws, at uncertain intervals still sweep over England, but they have been despoiled of much of their power.

Treatment

Prophylactic treatment is always better than the remedial, for it is always better to prevent a disease than it would be to cure. One of the surest preventives of cold that I could recommend, and at the same time a preventive of many other

diseases, particularly of the skin, is a cold bath at night, either by a plunge into the bath tub or by a free sponge bath or a shower bath; if the latter is used, however, the water should not be too cold. This, with ordinary care, and a proper attention to clothing, will generally protect you from colds.

Sir Astley Cooper says: "The methods by which I preserve my own health, are temperance, early rising, and sponging the body every morning with cold water, immediately after getting out of bed, a practice which I have adopted for thirty years; and though I go from the hot theatre into the squares of the hospital, in the severest winter nights, with merely silk stockings on my legs, yet I scarcely ever have a cold. Should it happen that I feel indisposed, my never failing remedy is one (1) grain of calomel combined with four (4) grains of cathartic extract, which I take at night; with a basin of hot tea about two hours before I rise the following morning, in order to excite a free perspiration, and my indisposition soon subsides."

Curative treatment consists in warm mustard foot-baths at night, followed by large draughts of lemonade, or lemonade taken cold, if there is fever, together with a dose of citrate of magnesia, or rochelle salts, or senna tea, in the morning, will generally suffice to break it up. If the bowels are costive, the following may be used:

Compound powder of jalap,	. . .	1 ounce.
Cream of tartar,	. . . . .	1 ounce.

Mix. Dose a teaspoonful in sweetened water.

When the attack is severe the patient should be put in bed, bottles of hot water being placed at the feet and sides, and given drinks of peppermint, pennyroyal or sage.

Five (5) drops every hour of the tincture of veratrum viride will often cause free perspiration. If the cough is severe prescriptions recommended in bronchitis will be beneficial.

If in the latter stages of the disease there be much debility the following may be used :

Citrate of iron,	1 drachm.
Sulphate of quinine,	1 scruple.
Extract of nux vomica,	8 grains.

Mix. Make into thirty-two (32) pills, and take one (1) pill three times a day. An attack of influenza may sometimes be relieved, in a day or two, by giving quinine in four (4) grain doses three times a day.

When the patient is old and feeble, the following may be given :

Infusion of gentian,	5½ ounces.
Sesquicarbonate of ammonia,	½ drachm.
Compound tincture of Cardamon,	½ ounce,

Mix. Dose, two (2) tablespoonfuls two or three times a day.

The diet should be nutritious and not stimulating—consisting of broths, arrowroot, sago and jelly.

When the attack is mild, but little medicine will be required. It will be sufficient to bathe the feet, the patient being confined to the bed, and allowed to drink freely of barley water, thin gruel and warm lemonade. If there is much difficulty in breathing, give once in a while a teaspoonful of either tincture of lobelia, or tincture of blood root, or wine of ipecac. For the cough and sore throat give the following :

Good vinegar,	1 teacupful.
Honey,	½ teacupful.
Cayenne,	1 teaspoonful.

Simmer over a fire a few minutes, and when cold give a teaspoonful occasionally or whenever the cough is troublesome.

A dose of the compound tincture of Virginia snake-root may be given every hour or two, to promote perspiration, the patient being allowed to drink freely of the teas of boneset, hoarhound, or sage.

The vapor bath (spirit), or a warm bath, should be taken, and the patient comfortably put to bed with a hot brick or jug of hot water put to his feet ; ten (10) grains of Dover's powder should then be administered, and in eight or ten hours, a saline cathartic.

Homœopathic treatment

Camphor (saturated tincture).—This medicine when employed upon the earliest manifestations of the symptoms, as chilliness, shivering and general uneasiness, will frequently prove effectual in arresting the disease. It is equally useful in the more advanced stages of the complaint.

Nux vomica.—Is also useful when the symptoms are obstructions of the nose, hoarse hollow cough, with tickling in the throat and severe headache, want of appetite and pains in the chest.

Hepar sulphur.—If the cold has been better but is getting worse, or if the patient has taken much calomel ; cough renewed by every breath of wind.

Phosphorus and Tartar emetic.—These may be given in alternation, if there is oppression of the lungs, accompanied with a weak and sore feeling in them,—when there is rattling in the chest in coughing or breathing.

Pulsatilla.—After mercury, or in alternation with it every three or four hours—cough loose, discharges from the nose yellow and thick, soreness of the chest in the morning, sour bad taste in the mouth.

Silicea.—When the complaint is chronic and returns frequently.

Euphrasia.—When there is a discharge of white mucus from the nose, the eyes being sore and running water profusely.

Administration of remedies.

Of the selected remedy dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and give a dose every one, two, or three hours, according to the urgency of the symptoms. Of the globules, give from three (3) to (6) at a dose.

HECTIC FEVER.

In this species of fever the patient is attacked daily, between five and six o'clock in the afternoon, with rigors or shivering, which continues from a quarter of an hour to an hour, followed by quick pulse, hot skin, thirst and restlessness. Delirium is not a symptom of this affection, and headache only occasionally occurs. Profuse sweating breaks out about ten or eleven o'clock, which relieves the patient, who then falls asleep, and on awaking, about five or six in the morning, finds himself bathed in perspiration. There is also another attack about noon, which is slight, and sometimes not attended with shivering. Indeed, hectic fever, when it has continued some time, and is completely formed, never ceases entirely, inasmuch as the pulse beats at least ten strokes in a minute more than it would do in a state of health; and, in this respect differs from ague, in which there is a complete intermission.

The pulse is always quick, varying from a hundred to a hundred and twenty, and sometimes it reaches a hundred and forty. "Almost from the first appearance of the hectic, the urine is high colored, and deposits a copious branny red sediment, which hardly ever falls close to the bottom of the vessel." The appetite is at first very little or not at all impaired, but gradually gives way as the patient's strength diminishes; the tongue is red and clean; the face is pale in the morning, but, towards evening, when the feverish symptoms commence, a circumscribed redness appear on the cheeks, called hectic flush; and the white of the eyes has a delicate pearly tint.

The patient becomes weak and emaciated, the cheeks are hollow and sunken; the face is long and thin, and the eyes

appear sunk in their orbits. Purging comes on at last, and this, with the excessive perspiration, during the night, rapidly reduces the patient's strength, and he dies completely exhausted.

Hectic fever may arise from irritation or slow inflammation of any part or structure of the body, associated with debility, or, as it is sometimes termed, a broken-down constitution; or it may be caused by the fluids of the body becoming corrupted in consequence of the absorption of morbid matter, (pus).

Treatment.

Hectic fever being generally, if not invariably symptomatic of some other disorder, the means of cure must of course, have direct reference to the morbid state of the organ or part with which the fever is associated. We must therefore, refer the reader to treatment directed for the diseases on which it depends.

General tonic treatment will also help in preventing the paroxysms. These may be directly checked with appropriate care by full dose of quinine, salicine or other antipyretics given before the usual time for their occurrence. Sponging the skin freely, may also prove of service in some instances. The treatment of hectic in phthisis runs into that of night sweats and can be more conveniently discussed under that disease.

GLANDERS OR FARCY.

Glanders in the human species is a very rare disease, one febrile in character and contagious; communicated to man from animals of the genus *edrus*, hence we find it nosologically as "*Equina*" and defined "Glanders, a contagious disease, to which horses are subject, but communicable to the human species by inoculation." It is characterized by specific inflammatory lesions of the nasal and respiratory mucous membrane, and of the lymphatic vessels and glands, with general pyrexia, pains in the joints and muscles, and great

prostration, usually accompanied by pustular cutaneous eruption. The prognosis in the acute form is very unfavorable indeed, but a very limited number of recoveries are on record, not more, perhaps, than two or three cases of the acute form, and, possibly, not exceeding fifty per cent. of recoveries in the chronic. Such being the case I deem it useless to occupy but little space in its consideration, on the other hand, owing to its gravity, I would advise the immediate treatment by a skilled physician.

Treatment.

The constitutional treatment should be supporting, stimulating and soothing, and varied from time to time according to the indications afforded.

Quinine in large doses and perchloride of iron may be useful. But at present although very many drugs have been tried, none have been found having any marked specific effect on the course of the disease. Locally, any suspicious wound should be freely cauterized as soon as attention is directed to it. All abscesses and collections of morbid material should as far as possible, be freely incised, and their contents thoroughly evacuated. The resulting cavities and fistulæ should be frequently and thoroughly washed out with disinfectants, and poultices should be applied. The operator and those who dress the wounds, should wear india-rubber gloves. Inhalations of iodine or carbolic acid vapor should be frequently practiced; and the nose thoroughly syringed from time to time with disinfectant solutions as carbolic acid, iodized water, or Condy's solution.

SCARLET FEVER.

It is of the utmost importance that all mothers or nurses should learn to distinguish between scarlet fever and measles in the earliest stages of the disease. For this reason I will name the distinctive features of each, before beginning to speak, of this subject, and will present them in a tabulated form for convenience.

Scarlet fever.

Eruption is bright scarlet.

Appears on the second day.

Is quite smooth to the touch.

In irregular patches.

Face quite dry.

Measles.

Eruption deep red.

Appears on the 4th. day.

Is raised.

In larger, and crescent shaped patches.

Face swollen ; running
from the eyes and nose.

The first so often proves fatal, that too much attention cannot be paid to first symptoms of illness in a child. There are two kinds of this disease—the mild form, usually called scarletina, which begins like other fevers with coldness and shivering, without any violent sickness. Afterward the skin is covered with red spots, which are broader and brighter colored than the measles. If the child be kept warm, it often passes off without doing any harm, after continuing for a few days, after which the cuticle or scarf skin falls off. The child should be kept in three or four weeks, or until the scarf skin has ceased to scale off. It is not generally known that the danger of contagion lies in the contact with this scarf skin. Ignorant parents often let the child play out of doors, during the shedding of this skin; thus communicating the disease to many others.

Keep the patient well oiled with a mixture of sweet oil and carbolic acid, which prevents the particles of scarf skin from floating in the air. Dropsy is also as apt to follow a case of the mild, as the more serious form; and we would urge therefore, that too much care cannot be taken in keeping the patient in bed two weeks. So far we have spoken only of the mild form. When the disease assumes the more serious aspect, which it does very soon, the patient is often attended with vomiting excessive heat and soreness of the throat, the tongue covered with a white mucus; pulse extremely quick but small and depressed, skin hot but not

quite dry ; throat sore and ulcerated. Where the eruption appears, it brings no relief, on the contrary the symptoms generally grow worse and fresh ones come on as purging delirium. The tongue becomes suddenly clean and presents a glossy fiery red appearance. The tonsils are covered with white or grey ulcers. Swallowing is very difficult. The great amount of mucous causes also a continuous rattling in the throat. In very violent attacks the system seems inclined to sink immediately, typhoid symptoms show themselves ; the eruption strikes in ; the skin changes to a mahogany color, the tongue has a dark brown fur upon it—and the throat becomes putrid.

Treatment.

The measures necessary to be taken are generally very mild. If not too sick at the stomach give warm drinks to promote perspirations—injection of soap, olive oil and water. In the hot stage bathe the patient in tepid water, in which is a little soda, avoiding any draft of air that might produce a chill and bathing the patient under the covering—give—cooling drinks—lemonade—with gum arabic in it—apple tea—black currant tea—or raspberry shrub. Exclude the light from the room and keep up an agreeable temperature. Carry off the superfluous heat of the body by keeping the body well oiled with olive oil or lard, or uncooked fat bacon. In the mild form nothing else is necessary, except a few drops of belladonna in water, night and morning. In the more serious cases the following prescription is good :

Sulphate of quinine,	. . . . .	1 scruple.
Alcohol,	. . . . .	4 ounces.
Sulphuric acid,	. . . . .	5 drops.
Madeira wine,	. . . . .	1 quart.

Mix, 2 wine glasses a day.

We will, however, recommend a course of treatment which by following explicitly—a mother or nurse may be

able to bring a child through a severe case when it is quite impossible to have the services of a good doctor.

For sore throat a solution of chlorate of potash, one (1) drachm to a pint of water, which the child can gargle and drink freely. When the inflammation is severe, a cold compress may be applied to the neck. Pounded ice may be used instead of cold water. If the glands are very much swollen, showing in hard lumps on the neck, tincture of iodine may be applied with a camel's hair brush. If the cold applications become disagreeable, warm poultices may be substituted. If the discharge accumulates in the throat and nose it should be removed by a soft cloth swab dipped in alum water, sage tea or borax, mixed in honey and water. Where the discharge is of a puslike character, make an application three or four times a day,—carbolic acid twelve (12) drops, glycerine, one (1) ounce. Give the tincture of belladonna, in doses of one (1) to five (5) drops to a child, or fifteen (15) to twenty (20) drops to an adult four to six hours apart. Quinine must be given through the whole course of the disease until recovery is secured, and the appetite good. Dose, one (1) to two (2) grains to a child, and three (3) to five (5) grains, at intervals of four to six hours. As soon as the shedding of scarf skin begins, the tincture of the chloride of iron, given in five (5) drop doses to a child and fifteen (15) to twenty (20) drops to an adult, three times a day, well diluted in water. In malignant cases the physician's direction should be followed explicitly.

The least draft of air will always cause a slight chill, which is often the precursor of serious resulting diseases. The presence of urea—a constituent of the urine remaining in the blood—is the most dreaded condition, indicated by convulsions, headache and insensibility. A cathartic dose of Epsom salts, two (2) tablespoonfuls for an adult, one (1) for a child.

Free sweating should be produced by the warm water pack, or a hot-air bath twice a day. Dropsy should be treated in the same manner, using castor oil instead of salts.

The following mixture to act on the kidneys is good :

Acetate of potash,	. . . . .	1 drachm.
Tincture of digitalis,	. . . . .	1 drachm.
Syrup of squills,	. . . . .	3 drachms.
Water,	. . . . .	2 ounces.

Dose, teaspoonful every four hours to a child, table-spoonful to an adult. A tea made of juniper berries, or water-melon seeds has been found very useful in the absence of the above.

Homœopathic treatment.

If the patient complains of his throat, give belladonna—dose once in three hours. When there is distressing tightness of the chest, increasing fever towards evening, looseness of the bowels or colic, give ipecacuanha—dose every three hours. When this has succeeded in relieving the oppression of the chest, and considerable nausea with frequent fits of vomiting remains, give pulsatilla ; a dose every two hours till a decided relief is afforded. When the swelling of tonsils increases, and there is ulceration of the throat, give mercurius, a dose every three hours. If the vital powers seem rapidly sinking, and the ulcerous throat assumes a gangrenous form, or the muscles of the throat seem paralyzed, give arsenicum, dose every one or two hours. In extreme cases it may be repeated thirty or fifteen minutes, according to the violence of the symptoms. When the patient has been subject to chronic affections of the skin, or is of scrofulous habit, give sulphur, a dose every six hours.

Hydropathic treatment.

A noted London doctor claims that in fifteen years practice, this course of treatment has never lost him a case. Immerse the patient in a warm bath as soon as scarlet fever is suspected, and as often afterward as the strength of the patient will allow. A soothing effect immediately follows, and

the eruption follows so soon, and of such a bright color as to astonish one who has never seen it. By this means the greatest danger is averted ; viz., the suppression of the eruption. Keep up the strength of the patient by nutritious food and drinks. The bath seems to check the spread of the disease by removing the excreta of the skin as soon as it is deposited. This treatment promotes also the picking of the scarfskin. The body should be gently dried by soft linen cloths.

Will here append a copy of the sanitary regulations against scarlet fever and measles, issued by the Health Board of New York city.

Care of patient.—The patient should be placed in a separate room, and no person except the physician, nurse or mother, allowed to enter the room, or to touch the bedding or clothing used in the sick-room, until they have been thoroughly disinfected.

Infected articles.—All clothing, bedding, or other articles not absolutely necessary for the use of the patient, should be removed from the sick room. Articles used about the patient such as sheets, pillow cases, blankets or cloths, must not be removed from the sick-room, until they have been disinfected, by placing them in a tub, with the following disinfecting fluid.

Eight (8) ounces of sulphate of zinc, one (1) ounce of carbolic acid. They should be soaked in this fluid for at least one hour, and then placed in boiling water for washing. A piece of muslin one foot square, should be dipped in the same solution and suspended in the sick-room constantly, and the same should be done in the hallway adjoining the sick-room. Feather beds and pillows, hair pillows and mattresses, and flannels or woollen goods requiring fumigation, should not be removed from the sick-room until this has been done. Whenever the patient is removed from the sick room, inform the Bureau of Sanitary Inspection, when the disinfecting corps will, as soon as possible thereafter, perform the work of fumigation. All vessels used for receiving the discharges of patients, should have the same disinfecting fluids constantly therein, and immediately after use by the patient, be

emptied and cleansed with boiling water. Water closets and privies, should also be disinfected, daily, with the same fluid or a solution of chloride of iron, one pound to the gallon of water, adding one or two ounces of carbolic acid. All straw beds should be burned, but must not be removed from the sick-room, without a permit from this department. They will be removed by the disinfecting corps. It is advised not to use handkerchiefs about the patient, but rather soft rags for cleansing the mouth and nostrils, which should be immediately thereafter burned. The ceilings and side walls of the sick-room, after the removal of the patient, should be thoroughly cleansed, and lime-washed, and the woodwork and floor thoroughly scrubbed with soap and water. As a fumigating antiseptic and disinfectant, chlorine gas stands unrivalled. The ingredients used in its production should be in glass or earthen deep dishes or saucers placed in the higher parts of the room. The gas will descend, being heavier than the air, and become mixed with surrounding air. The following articles are used for its production: One part of common salt mixed with one part of black manganese, and placed in shallow earthen vessels; two (2) parts sulphuric acid, previously diluted with two (2) parts, by measure, of water, is then to be poured over it, and then stirred with a stick. The room with the infected articles should be then shut up tightly and left for several days. The cleansing scrubbing and white-washing can then follow.

MEASLES.

This disease usually prevails as an epidemic early in the spring, but is often found at other seasons of the year. With proper treatment it seldom proves fatal. The most serious dangers to be feared are those resulting from a slight cold, taken when affections of the eyes, throat, chest and scrofulous ailments follow. The greatest care must therefore be taken by mother or nurse to avoid even a slight chilliness to be felt by the patient.

Symptoms.

At first they are those of ordinary cold, such as short dry cough, redness of the eyes, with a flow of tears, feverish appearance preceding the eruption from four to five days, and usually continuing all through the disease. In scarlet fever the rash appears generally in two days. When an adult is attacked with measles, which is not so common as it is with children, much more dangerous complications arise, and we would advise in all cases possible to have a doctor, who will better understand how to cope with the peculiarities that may arise in individual cases. As in scarlet fever, it is important to have the rash come to the surface, avoiding any means that will cause it to "strike in"—to use a common expression. It is from ten to fifteen days after exposure, before the disease begins to develop as above described. About the fourth day the rash appears on the face, in spots raised on the surface to the touch, and of half-moon shape. In scarlet fever the skin is smooth to the touch, and the patches irregular in shape, thence spreading all over the body, but not so bright a red as in scarlet fever. After three or four days the rash grows lighter in color, the fever lessens, and the skin begins to scale off. When the inflammation is at its height, the color is a bright raspberry red.

Treatment.

If the disease is mild, scarcely anything will be required except mild diet, such as cracked wheat, boiled rice, sago, tapioca, warm lemonade or slightly acid drinks, slippery elm tea to quiet the cough. Keep the patient warm in bed, in a cool ventilated room. If there is any pain or tightness of the chest, apply a mustard and flaxseed poultice. Sponge frequently in tepid water, but avoid the least symptom of chilliness. Do not leave the house for at least a week after the rash has disappeared. If the rash strikes in, recall it immediately by giving the patient a hot mustard bath, keep warm in bed, place bottles of hot water under the arms, drink hot teas to bring on perspiration. If the rash still delays in

re-appearing, give doses of hive syrup, and keep the bowels open. If there should be much pain in the chest, more serious results may be feared—as pneumonia.

Sweet oil and carbolic acid should be used to rub over the flesh, at the time of desquamation (peeling) both in this disease and in scarlet fever, to prevent the dry particles flying in the air and communicating the disease to others.

Homœopathic treatment.

When hot dry skin, give aconite, dose every two hours. When the cough is worse toward evening, with rattling of mucus, give pulsatilla, dose, every three or four hours. If there is great oppression of the chest before the rash is seen, give ipecacuanha, dose, every two or three hours. When the headache is severe, and the eye very sensitive to the light, profuse flow of tears, and watery discharge from the nose, with pains in the bones, give euphrasia, dose, every three hours. When the eruption is retarded or imperfectly developed, the breathing oppressed, a short dry cough, with shooting pains in the chest, increased by drawing a long breath, give bryonia, dose every three or four hours. When there are signs of irritation of the brain, with glassy inflamed appearance of the eyes, and when the inflammation attacks the throat, showing many of the throat symptoms described under scarlet fever, give belladonna, dose, every two hours.

SMALL POX.

This disease is said to have made its first appearance in Arabia at about the time of the birth of Mahomet. The two prominent forms are the distinct and confluent; in the former the pustules are separated, in the latter they run together. Besides these, there are modifications of the disease known as varioloid. The symptoms are headache, nausea, giddiness, pains in the back and limbs, and ordinary symptoms of general fever. If there be any peculiar evidence it is the violence of the pains in the small of the back. In children especially it often begins with soreness of the throat, sneez-

ing, coughing, and an excess of tears, is therefore often mistaken for measles. At the end of the second or third day the eruption begins to appear in the form of red spots and can be felt on the forehead before it is visible to the eye. The eruption is generally completed at the fifth. The fever suddenly subsides, and the patient, except for the eruptions, is quite cool and comfortable. On the third or fourth day the pocks are formed—being flattened on the top—with often a little depression in the centre, they are hard to the touch and surrounded by an inflamed circle. From this period they gradually increase in size, becoming convex at the top and distended. This is called the secondary period or maturation. About the eighth or ninth day, fever again sets in, called secondary fever, and at this time death often occurs.

The third or declining stage is little more than a period of convalescence. About the eleventh or twelfth day, the pustules on the cheeks become brown and dryish at the top, some of them break and form a yellowish crust which becomes a dry scab that falls off about the fourteenth or fifteenth day.

Preventive means.

Much has been written of late years against vaccination, and the danger of inoculating other diseases into the system by these means. But the thinking masses agree that the discovery of Jenner has been of incalculable value to the world and has justly immortalized him. So generally is its importance realized that it is made legally compulsory in some places to have every one vaccinated.

During the prevalence of the disease it is well to keep the bowels regular and a drink of cream of tartar and water may be used quite freely with beneficial effect.

Treatment.

Formerly patients were treated in a perfectly barbarous manner, swathed in hot blankets in a hot room and dosed with hot drink. Now, however, the patient is given a large

airy room, cool in summer and of an agreeable temperature, thoroughly ventilated—the bed supplied with light blankets frequently changed, plenty of fresh air—frequent spongings—and cooling drinks. To quiet the itching, apply sweet or almond oil, or cold cream to the parts, keeping them covered from the light to prevent pitting. For this a piece of black silk with holes cut for the mouth, nose and eyes may be used, and if necessary muffle the hands to prevent scratching or tearing off the scabs. The diet may be light of tea or toast, giving mild purgatives to keep the bowels open. After the secondary fever sets in, the patient will require some additional support—calf foot jelly or beef-tea. To prevent pitting, apply carbolic acid and mucilage of green acacia, one (1) part of the former to eight (8) of the latter, and apply freely with a hair pencil, using olive oil or sweet oil freely to keep the scab soft. The method of cauterizing the pustules for the same purpose has been found effectual but it is of no use if applied after the second day. The best plan is to open each pock separately, then with a sharply pointed stick of nitrate of silver touch each one. The progress of the eruption is thus completely arrested, and at the end of the week the scales fall off without leaving pits. Another method is by the use of the mercurial plaster applied at the commencement of the eruption. Make the plaster in the form of a mask leaving openings for eyes, nostrils and mouth. The Children's Hospital in Paris have found the following formula or the plaster to succeed marvelously well."

Mercurial ointment,	. . . . .	25 parts.
Yellow wax,	. . . . .	10 parts.
Black pitch,	. . . . .	26 parts.

If in the commencement of the disease the patient is restless and cannot sleep at night, a dose or two of morphine may be tried and repeated if it seems to do good.

It often happens that late in the disease the patient is restless and cannot sleep, it is there that morphine will do

good and must be taken. Put four (4) grains of morphine in an ounce of water and give from twenty (20) to thirty (30) drops to a dose. During convalescence quinine and tincture of iron should be used.

Dr. Edwin Rosenthal has employed salicylic acid in many cases of small pox with good results. The formula employed by him is as follows :

Salicylic acid,	. . . . .	1 drachm.
Rectified spirits of wine,	. . . . .	$\frac{1}{2}$ ounce.
Mix and add :		
Simple elixer,	sufficient quantity to make	six ounces.

For the sore throat, following small pox, he uses in conjunction then the following gargle of xylol and finds it very satisfactory :

Xylol,	. . . . .	1 drachm.
Gum acacia,	. . . . .	2 drachms.
Peppermint water,	. . . . .	6 ounces.

Make into a soft emulsion. Use as a gargle and mouth wash.

He confirms the statement that salicylic acid in small pox reduces the temperature, is sedative and modifies eruption.

A surgeon in the English Army in India, it is said, has discovered a remedy very efficient in small pox. The disease is treated as follows.

When the fever has reached the highest point, and before the eruption appears, rub the chest of the patient with croton oil and tartaric ointment, which makes the eruption appear on that part of the body, and not on the rest of it.

By means of this treatment they also obtain the result of causing the eruption to break out entirely, and of preventing the disease from attacking the internal organs.

Such is the treatment adopted in the English army in India, and it is considered a perfect cure.

Homœopathic treatment.

Cool and fresh air are our best helps, the emanations from the patient react upon the organism and warmth only increases their activity. So beneficial is cool air, that frequently taking a child to an open window, when in convulsions will generally afford immediate relief. Great cleanliness must be observed, and the linen frequently changed. All carpets and curtains should be removed from the room. To avoid pitting, many physicians have adopted a plaster for the face of different substances, such as gum mucilage or calamine, or collodium to the face, or oil, cold cream, or oil and lime water. Glycerine and hydrastic, glycerine and thuga, when collodium cannot be tolerated, have been of service in preventing disfiguration from pitting, the object being to exclude the air and keep the skin moist. A patient after small pox should not be allowed to see other people until the face and body are entirely free from scabs and the body been frequently washed. All articles and clothing worn should be destroyed.

Attendants in the sickroom should not see other members of the family, without going first into the fresh air to carry off infection.

In cases where there is soreness of the back or much prostration the patient should be placed on a water pillow or bed. When the fever runs high, a patient should never be left alone even for an instant, lest violent delirium sets in and he do some serious injury to himself.

Aconite should be given at any time when there is fever, and the patient hot and restless. Dose every two or three hours. When there is mucous rattling and nausea, give *antimonium*. Dose every three hours. *Hydrastic* has been used very successfully in the eruptive stage. Dose every three hours. When there is intense painful fever with tendency to convulsions in patients who have been accustomed to take stimulants plentifully, give *gelseminum*. Dose every three hours. Should the brain disturbance continue to increase, *belladonna* may follow either *aconite* or *gelseminum*:

Dose every two hours. When the nausea and vomiting are unallayed, give arsenicum. A dose every two hours. Should the eruption strike in or be checked give cuprum aceticum, a dose every hour until the eruption begins to reappear and the severer symptoms modified, then every three hours until the eruption is thoroughly reproduced. When the chest is prominently affected, bryonia is required, a dose every hour, then every three hours. Hydropathists treat all those diseases as those of the skin, without medicine of any kind. They use warm baths, cooling and simple food, such as coarse bread, berries and melons, being careful to have a full free action of the bowels, every twenty-four hours, and strictly avoiding everything that would cause a chilly or cold sensation to any part of the body.

ERYSIPELAS, ROSE, OR ST. ANTHONY'S FIRE.

Da Costa classifies erysipelas among the eruptive diseases, with smallpox, measles, etc. It is a peculiar inflammation of the skin, attended with fever, and frequently accompanied by elevations of the scarf-skin, resembling blisters. Sometimes it is a mild disorder, confined to a small portion of the skin, (simple erysipelas); sometimes the inflammation extends deeper than the skin, (*phlegmonous* erysipelas); while, in other cases it attacks the face, extends to the head, and is attended with very great danger to life.

Symptoms.

Erysipelas is generally preceded by symptoms of fever, as general lassitude, shivering, headache, coated tongue; these symptoms are followed by hot skin, quick pulse, thirst, pains in back and limbs; the skin becomes red or purplish, and a severe tingling, burning sensation, with stiffness and pain is felt. The parts begin to swell, and if the inflammation is in the head or face, the features may become indistinguishable, and the eyes be closed from the great amount of swelling. Blisters filled with water like those from a scald, may form on the surface. The mind wanders at night,

especially when the disease is located in the head, and sometimes the throat is very much swollen. In the worst cases, delirium and coma come on, and the patient may die from an effusion within the head. When the erysipelas affects the tissues deeply, matter may form, and the parts slough or fall off. When the parts are deeply affected, the color is very florid, the tingling and burning very severe, and the surface firm and hard, it is called *phlegmonous* erysipelas. When the swelling is soft and spongy—pitting on pressure—the color is pale red, or waxen, and usually affecting those of feeble constitution, it is called *œdematous* erysipelas.

When erysipelas appears as a mere blush without fever, it is called *erythema*.

Causes.

The causes of erysipelas are various, some of which are as follows : atmospheric influences, irregularity of living, want of cleanliness. The exciting causes are, intemperance, violent mental emotions, exposure to cold after being over heated or excited, especially when the stomach is out of order, wounds and bruises. Great care must be taken to prevent it spreading, such as the free admission of fresh air, great cleanliness, and taking a sufficient amount of nourishment. Persons suffering from wounds, or who are diseased in any way, and especially women about to be confined, should not be allowed to remain in the vicinity of a case of erysipelas, nor should persons in attendance on a case visit any one suffering from wounds, or in confinement, without great care being taken to guard against communicating the disease, by changing the clothes, bathing, etc.

Treatment.

Simple erysipelas generally yields to mild remedies. When it is confined to a small portion of the skin, nothing more will be required than to keep the part perfectly quiet, and administer any mild purgative medicine once a day. But if the inflammation runs high, and be attended with some

fever, it will be necessary to commence the treatment by giving an emetic, and then acting upon the bowels by smart purgatives. When the heat and tension of the skin are great, warm fomentations may be applied to the swollen part. When the erysipelas has a tendency to spread from one part to another, great benefit will be derived from drawing a moistened piece of lunar caustic two or three times around the inflamed surface so as to bound the part completely ; the caustic when used in this way, often excites a kind of inflammation in the healthy skin, which prevents the spreading of the erysipelatous affection.

Phlegmonous erysipelas, or that species which extends to the deep parts underneath the skin, generally requires a more active treatment. An emetic, composed of twenty-four (24) grains of ipecacuanha, should be given ; and when the face or head are attacked, the same dose should be repeated thrice a day, until a decided impression is made on the disease ; or nausea, with occasional vomiting, may be kept up. Better cover the affected parts with pieces of linen saturated with equal parts of glycerine and muriate tinc. of the following : Tinc. mur. iron, glycerine and ether, equal iron, and give parts, a teaspoonful every four hours.

If the bowels are not freely acted upon with ease, they are to be opened by calomel and jalap, the extract of colocynth, (six (6) to ten (10) grains,) or any other strong purgative medicine. The patient should abstain entirely from animal food ; his drink should be cooling, and gentle perspiration may be excited by adding twenty (20) grains of nitre, and one quarter of a grain of tartar emetic to each pint of cold fluid which the patient drinks. Should any symptoms of inflammation of the brain come on, they must be immediately treated as a case of inflammation of the brain. It must be well understood, that these active measures are only suited to the first stage of phlegmonous erysipelas, when it occurs in strong and healthy persons.

Very good results are claimed from the use of a solution of borax in glycerine one (1) drachm to the ounce.

Mr. Barwell has found white paint very efficacious in erysipelas. He reports three cases in which its application was followed by prompt relief of pain and swelling. He mixes carbonate of lead, after the usual manner, with linseed oil a little turpentine being added as a dryer, and applies freely to the inflamed surface. The remedy probably acts by occlusion of air after the same manner that it does with so much benefit in burns.

Dr. Hastreiter recommends the treatment of erysipelas by painting with oil of turpentine, on the following grounds :

1. It can be employed on the most sensitive patients, does not require any skill, and can be applied by the patient himself as often as may be necessary, and the irritation produced by excessive friction is avoided. During its application the eyes should be protected by a pad.

2. When employed frequently enough this method is perfectly safe, and tends to produce a rapid cure.

3. Oil of turpentine can be procured everywhere.

4. All other dressings are unnecessary.

5. Internal antipyretic is only rarely necessary ; usually all that is necessary is to bathe the body with cold water, and to make use of cold applications to the head.

6. The inhalation of the vapor of turpentine can, perhaps, act as a preventive of the extension of the disease to the air-passages.

7. When employed at the outset of the disease it may abort the morbid process.

8. The oil of turpentine may also be employed in phlegmonous inflammation other than erysipelas.

Dr. Tagert has found a solution of boracic acid in water, frequently painted over the face very useful.

Dissolve as much of the acid in the water, as it will hold.

Dr. Rothe observes that, however efficacious the subcutaneous injection of carbolic acid proves in arresting the course of erysipelas, it is not suitable when the face is the part attacked, for not only does it give rise to considerable pain, but induces a swollen and painful condition of the peri-

phery. For some years past he has been in the habit of using the following application.

Carbolic acid,	. . . . .	1 part.
Spirits of wine, .	. . . . .	1 "
Oil of turpentine, .	. . . . .	2 parts.
Tinc. of iodine,	. . . . .	1 part.
Glycerine, . . . . .	. . . . .	5 parts.

Pencil the inflamed skin and its vicinity with it every two hours. No pain or sense of burning is produced, and the skin is usually next day pale and wrinkled. The further progress of the disease is more effectually arrested than by any other remedy, any new patches being rapidly effaced, so that in three or four days the facial erysipelas is usually at an end. The pencilled places should be covered by a very thin layer of wadding. When febrile action is present the ordinary internal measure must also be resorted to.

Dr. C. S. Hutchinson records a case of a large, robust man, who was thought to be in extremis from a violent attack of idiopathic erysipelas of the head and face. Iron and the usual internal remedies had been tried; but no external application had been used. Iodine was now painted on the scalp. This had a magical effect, the patient being out of danger two days afterwards, the convalescence beginning with the first application of the iodine. Dr. Hutchinson has never before seen so desperate a case recover so quickly.

The tincture of iodine may be used to prevent the inflammation spreading, and Dr. Wood recommends to paint a border of about two inches, one-half on the inflamed surface, and the other on the sound skin; apply freely and repeat daily if necessary. Nitrate of silver is recommended by Higgenbottom, employed as follows:

Nitrate of silver,	. . . . .	2 scruples.
Nitric acid,	. . . . .	12 drops.
Water,	. . . . .	1 ounce.

Mix. Apply with a rag tied on a stick or a hair brush.

Homœopathic treatment

Aconite.—If there is great fever, hot dry skin, thirst, etc.

Belladonna.—An important remedy, especially for erysipelas of the face, with swollen eyes, dry skin, thirst and delirium. Aconite and belladonna may be given alternately. A dose every two hours. If the symptoms do not improve and the patient complains of pain in the throat, and dryness and cough without raising, give lachesis. Apis melifica. may be given in alternation with it.

If after having given these remedies for some time, and the patient still grows worse, and there is great sensitiveness to noise and light, the skin shines, and is very tender, and sometimes blisters, give belladonna and rhus tox, alternately, a teaspoonful every two hours. If the patient is drowsy, give a dose (four (4) globules) of opium. If very wakeful and restless, give coffee and belladonna, alternately, a dose every hour. Arsenic may be given when the eruption assumes a dark hue, and the patient is very weak.

Pulsatilla.—May be given when the disease is caused by some article of food, as oysters, clams, etc. Also when the eruption disappears in one place and reappears in another; also when it affects the ear. For erysipelas appearing in the joints, bryonia and rhus tox., alternately.

When blisters form which become putrid, give arsenicum and carbo vegetabilis, alternately.

Mercurius and *heparsulphur* may be given when the erysipelas terminates in abscesses.

When the disease is chronic, and the person is liable to it, now and then, give rhus tox. and graphites, on alternate days; a dose, (six (6) globules).

The application of water in the form of the wet sheet, to produce perspiration, will be found very beneficial.

Administration of remedies.

Dissolve twelve (12) globules in twelve (12) teaspoonfuls

of water, and give a teaspoonful every one, two or three hours, unless otherwise specified.

Diet.

Dry toast, gruels, black tea, warm lemonade if there is no diarrhœa, and stewed prunes.

Accessory treatment.

In cases attended by inflammatory fever, pure water, toast water or thin water gruel should alone be given at the commencement. When the fever yields, a light vegetable diet may be allowed. If the accompanying fever be of a typhoid character and the pulse begins to sink, or if the pulse be weak from the commencement, or again, if the erysipelas be of a gangrenous type, a more nutritious diet.

The greatest care must be observed to avoid the risk of taking cold even during convalescence; such an accident occurring during the disease is, as is well known, frequently accompanying erysipelas, is often relieved by dried and finely powdered starch, lightly dusted on, and the part covered by cotton wool. In slight cases, lint moistened with lotion and covered by flannel, answers, with roller bandage over, in the case of limbs, joints or feet.

Spongio-pilene wrung out of hot water may be applied, if there be any tendency to boils; or hot bread and milk, or linseed poultices when this cannot be obtained. Calendula cerate, causticum lotion or lime water and oil may be applied, to raw surfaces.

MOUTH AND PHARYNX.

DISEASES OF.

TOOTHACHE.

Toothache, in the ordinary acceptation of the term, usually arises from cold, from getting wet or remaining in a

draught. It is, however, very often associated with a derangement of the digestive system as the primary cause. It may originate from an exposed nerve or an abscess at the root of the tooth. A tooth should never be filled whilst it is aching. A mercurial amalgam should not be used as a filling. Gutta-percha or white wax make good temporary expedients. When we find a constant disposition to this distressing malady on the slightest exposure to cold, we conclude that some taint exists in the constitution; and until proper measures are adopted for its eradication, remedies most clearly indicated fail to relieve the patient, or, at most, but temporarily alleviates his sufferings.

Another obstacle is the difficulty in obtaining from a patient a clear description of his sensations.

Opiates often relieve the tooth-ache. For this purpose, a little cotton wet with laudanum may be held between the teeth; or a piece of sticking-plaster, about the size of a quarter, with a bit of opium in the middle of it, of a size not to prevent the sticking of the other, may be laid on the temporal artery, where the pulsation is most sensible. If there be a hollow tooth, a small pill made of equal parts of camphor and opium, or a small piece of assafœtida, put into the hollow, is often beneficial. When this cannot be had, the hollow tooth may be filled with gum mastich, wash, lead, cork or any substance that will keep in it, and keep out the external air.

Nervous tooth ache.

All the remedies, both local and general, recommended under the head of neuralgia, may be brought to bear upon this particular variety. Immediate ease can nearly always be obtained by bathing the side of the face with chloroform liniment; a little lint or cotton may also be saturated with it, and applied immediately to the tooth. Carious teeth should generally be removed.

Decayed teeth.

When caries exists, in addition to the means just mentioned, applications may be made to the cavity of the tooth itself. The most efficient of these applications, in the experience of the author, is creosote. Put undiluted into the carious cavity, this substance not only relieves, but also for a time often effectually cures toothache. But as it speedily destroys the tooth, it should not be used, if it is desired to save it; and great care is necessary to prevent it from coming in contact with the sound teeth, and injuring them. When liquids are employed, they should be introduced into the cavity on cotton. If opium is used, care should be taken that the quantity be not so great as if swallowed, to do serious injury.

When a tooth frequently becomes painful, and is too far gone to be saved, especially if the general health suffer, it should be extracted. In cases of dental fistulæ, it is generally advisable to remove the tooth, or such part of it as remains. The first teeth in children may be freely extracted, when carious and painful, as they are followed by others. But, in deciding as to the propriety of extraction, it should always be borne in mind that, when the permanent teeth are removed, the alveolar processes of the jaws are absorbed, and the cheeks or lips fall in, producing an appearance of old age. Besides, a carious tooth is often useful in mastication, in the intervals of pain.

Alum and salt, in equal parts pressed firmly into the cavity will often relieve; and so too, will sometimes a small piece of cotton dipped in morphine and pressed into the cavity, care being taken not to swallow any of the morphine.

Homœopathic treatment.

Aconite.—When there is a feverishness, with great anxiety and restlessness, violent throbbing, beating pain, disease caused by cold, accompanied by heat of the face, redness of the cheeks, swelling of the face. When this remedy relieves but only for a short time, follow with belladonna or china.

Arnica.—When the pain is caused by a mechanical injury, as by extraction or plugging. Arnica may be used as a lotion, one (1) part of the tincture, to five (5) or six (6) parts of water, a linen cloth being dipped in the lotion and applied to the injured part.

Belladonna.—When there is a sensation of ulceration in the teeth, drawing, tearing, shooting, cutting pains in the teeth, face, and ears, worse in the evening after lying down, gums hot and swollen, pain aggravated in the open air, or on touching cold or warm food to the teeth, heat and redness of the face, worse at night.

Hepar Sulphur.—Suitable for persons who have taken much mercury; when the toothache precedes the formation of gumboils.

Rhus.—Particularly for rheumatic toothache in wet weather, accompanied by pains in the limbs and head, shivering and restlessness, tearing, shooting, tingling pains, worse in the open air, or at night when the patient is very restless.

GUM-BOIL (*Abscess of the gums*).

A gum-boil sometimes arises from exposure to cold, but it is caused in the majority of cases, by the irritation of a spoiled tooth. Inflammation of the gum generally goes on to suppuration, to promote which, warm fomentations and poultices are frequently applied externally, but they appear to be of very little service.

Treatment.

Cut into the abscess as soon as there is reason to suppose that the smallest quantity of matter has formed. Afterwards the mouth may be washed occasionally with an astringent lotion composed of tincture of galls and water, or of twenty (20) or twenty-five (25) grains of sulphate of zinc, (white vitriol,) dissolved in half ($\frac{1}{2}$) a pint of rose-water. When the pain and inflammation have entirely subsided, the decayed tooth should be extracted, or filled by the dentist.

The mouth may be washed two or three times a day with

salt and water, in the proportion of a teaspoonful of salt to half ($\frac{1}{2}$) a pint of water.

Homœopathic treatment.

Aconite and belladonna.—In alternation, where there is considerable inflammation and swelling, with heat and pain, a dose every two hours, until relieved.

Mercury.—When there is throbbing and beating pain. This may be given in alternation with hepar sulphur.

Silicea.—When the preceding remedies have failed to arrest the progress of the boil, and matter has already formed.

Aconite and chamomilla.—To be given in alternation, when the gum-boils arise from irritation consequent upon cutting wisdom teeth.

Administration of remedies.

During the state of inflammation, the remedies may be give as often as once an hour, and from that to two hours. On giving silicea or calcarea, give a dose, every night and morning.

CANKER OF THE MOUTH (*Thrush*).

Known also as *stomatitis* or *aphtha*. A form of sore mouth found sometimes in adults, but one to which infants during the first few months after birth are more particularly liable. It is an inflammation of the mucus membrane of the mouth, at times assuming a very destructive character.

Symptoms.

First, pain and uneasy sensation in the gums, they become hot, dry, and very sensitive, attended on the part of the patient, with languor, indisposition to move about or play. Whitish yellow spots appear, which may increase until they cover the entire surface of the mouth. Should this condition continue any length of time, the general health becomes affected, the disease extending to the stomach and bowels, producing diarrhœa, feverishness and emaciation.

Causes.

Want of cleanliness is generally the cause of this disease. The mouth of the child should be washed out with a wet rag, after every meal, especially if nursing from a bottle. Feeding the unfortunate infant with sugar and molasses, or allowing it to suck little bags of sugar and bread, are other causes.

Treatment.

The most important thing is to keep the mouth of the child clean. A few grains of borax dissolved in a teacup of water, and used as a wash, will generally be effective. A very nice application is to dissolve half ($\frac{1}{2}$) a drachm of borax, with one (1) drachm of glycerine, and one (1) ounce of water. These may be used in a mild attack.

In the early stages of these forms of inflammation, very little is necessary to correct the disorder. Magnesia may be given to counteract the acidity of the bowels. After the inflammation has somewhat subsided, astringent washes may be used. Weak solutions of acetate of lead, sulphate of zinc and alum; or the following wash:

Chlorate of potash,	. . . . .	2 drachms.
Carbolic acid,	. . . . .	$\frac{1}{2}$ drachm.
Water,	. . . . .	8 ounces.

Chlorate of potash is almost a specific in any of the forms of inflammation of the mouth. Finely pulverized and combined with as much white sugar, it may be sprinkled on the ulcers. The general system will need attention. For poor digestion, give a powder of

Bismuth,	. . . . .	5 grains.
Pepsin,	. . . . .	5 grains.

—three times a day. If the blood is poor, build it up with Peruvian bark and iron. The diet should be nourishing and digestible. Fat food should be avoided. The mouth should

be frequently washed with warm water and washed out with weak solution of alum, honey and borax or sulphate of zinc.

Homœopathic treatment.

Mercury.—This remedy is indicated in almost every case, and may always be given at the commencement of the disease, except when it is caused by mercury, in which case give *carbo vegetabilis*, *hepar sulphur*, or nitric acid.

Nux vomica.—Ulcers putrid and painful, swelling of the gums, there being fetid ulcers all over the surface of the mouth, accompanied by constipation.

Arsenicum.—Ulceration of the margins of the tongue, with violent, burning pains, gums swollen, and easily bleeding, great restlessness, and a desire to drink frequently.

Capsicum.—Especially for persons of full habit, in quiet life, and where there are blisters, or vesicles on the tongue, together with swelling of the gums.

Nitric acid.—If mercury does not relieve, or if the gums are swollen, looking whitish, and bleeding easily, accompanied with looseness of the teeth, salivation, and putrid odor from the mouth.

Carbo vegetabilis.—Ulceration of the gums and tongue, with profuse bleeding, accompanied by a burning sensation, and excessive fetidness of the ulcers.

Sulphur.—To be given at the end of the cure, when there is swelling of the gums, together with beating pain, blisters which burn when eating, offensive, or sour smell from the mouth, constipation, or green, slimy diarrhœa.

As a wash use cold water, or sometimes lemon juice, or sage tea; a weak solution of brandy and water, will also prove beneficial.

Administration of remedies.

Of the remedy chosen, dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and give a teaspoonful every two, three, or four hours, according to the violence of the symptoms.

TONGUE (*Inflammation of, glossitis*).

Glossitis is an inflammation of the substance of the tongue. It is characterized by pain, heat, redness and swelling, with either a dryness of the mouth, or a profuse flow of saliva. It may become so swollen, that the mouth is entirely filled, whereby swallowing and speaking are very much interfered with, and on account of which, suffocation may be threatened.

Symptoms.

Previous to the pain in, and swelling of the tongue, the patient may be affected with chills, loss of appetite, disordered stomach, dull pains in the head and back, heat of the skin, rapid pulse, throbbing and aching pain in the tongue.

Causes.

Direct injuries, as from scalding drinks, wounds or bruises, bites or stings of venomous insects, salivation by mercury, small pox.

Treatment.

Much advantage may be derived from scarifying the anterior part of the tongue; and still more from making an incision into its substance along the middle, and which was successfully treated by incisions from an inch and a half to two inches in length, along the middle of the tongue. The bleeding must be promoted by emollient gargles. Richter says that the swelling generally subsides speedily after the incisions and they readily heal without any disagreeable consequences. From the impossibility of swallowing, internal remedies cannot be employed. Laxative enemata, however, are very useful, and should be frequently administered until the bowels are well evacuated. Considerable benefit may also arise from a large blister laid on the back of the neck or on the throat, after proper general and local depletion has been employed.

Homœopathic treatment.

Aconite.—At the commencement of the disease, when the fever and inflammation are severe, attended with acute, cutting pain.

Aconite and arnica.—Where the inflammation arises from some mechanical injury. Give in alternation every hour or two hours.

Mercurius.—This is the principal remedy, when there is violent pain, swelling and hardness, the tongue red, dry or moist, pulse rapid and free, breathing difficult, throbbing, stinging or aching pains in the tongue, the mouth and throat filled with the swollen organ, worse at night, rapid sinking of strength.

Belladonna.—Face red, eyes bloodshot, tongue inflamed, red, dry and swollen, violent beating of the arteries of the neck and temples, throbbing pain in the head, skin hot and dry.

In case the swelling becomes so enormous as to threaten suffocation, do not hesitate to take a knife and make an incision the length of the tongue, thereby relieving the congestion of the blood.

INFLAMMATION OF THE THROAT, OR QUINSY (*tonsillitis*).

Inflammation of the throat or quinsy, as this disease is popularly called is seldom ushered in by shivering, as in other inflammatory diseases; it usually commences with a slight degree of headache, and stiffness of the neck, and a feeling of general uneasiness. At the same time, or shortly after, a slight difficulty in swallowing is experienced, together with a sensation of heat and dryness, or rawness of the throat, which is soon followed by pain more or less severe, according to the intensity of the inflammation. The patient has a constant inclination to swallow, and every attempt at deglutition greatly increases the pain; the mucus of the mouth is very tenacious or slimy. Sometimes the patient cannot open his mouth sufficiently to allow the throat to be examined, if this can be effected, one or both tonsils are

found red and swollen, the uvula is also enlarged, and hangs down on the base of the tongue. It often happens that the tonsils enlarge until they touch each other; the uvula is then thrown backwards, and almost entirely concealed by them. In many cases the inflammation extends over all the back part of the throat. The tonsils are not unfrequently swollen to such an extent that swallowing is entirely prevented, and if the patient attempt to receive any kind of drink it is immediately returned by the nostrils.

At commencement of disease the tonsils appear like two red balls, dry and shining; later we may observe in the majority of cases, several oval or irregular shaped spots of a yellowish, sometimes of a greenish color, not only upon the surface of the tonsils, but on all parts to which the inflammation has extended. We must be careful not to mistake this appearance, for that which results from a much more dangerous form of the disease—the malignant or putrid sore-throat, in which false membranes are thrown out similar to those which we have described as being formed upon the lining membrane of the windpipe in croup.

The feverish symptoms which accompany quinsy are generally more severe than the local disorder would lead us to expect; the pulse is full and frequent, sometimes as high as 120 in the minute; the face is flushed; there is headache with sensation of fullness and weight in the head; considerable heat of skin, which sometimes alternates with slight shivering; the tongue appears swollen and is covered with white or yellowish colored mucus, and there is a disagreeable taste in the mouth; sometimes there is nausea or vomiting; the bowels are generally constipated; the patient is restless during the night and complains of a feeling of fatigue and general oppression.

Causes.

Exposure to vicissitudes of temperature, sitting in a current of air, wet feet, wearing damp linen, going out of a heated room into the cold air, or cold and wet. Women are

more particularly subject to it during the period of menstruation.

Treatment.

Frequently inhaling the vapor arising from hot water mixed with vinegar, or from a decoction of poppy-heads, will be found very servicable in every stage of the disease. If suppuration cannot be prevented, the application of warm poultices of bread and milk or linseed-meal to the sides of the throat, (not on the fore-part of the neck), and diligently steaming the throat, are the means to be employed to promote the formation of the matter.

In children and young people the best remedies at the commencement of sore throat are emetics and purgatives; these when timely administered often arrest the progress of the disorder, and ought never to be neglected.

The following liniment may be used, as an external application.

Oil of sassafras,	. . . . .	2 ounces.
Sweet oil,	. . . . .	2 "
Spirits camphor,	. . . . .	2 "
Spirits hartshorn,	. . . . .	2 "
Oil of pennyroyal,	. . . . .	2 "
Tincture of quinine,	. . . . .	2 "
Spirits turpentine,	. . . . .	2 "

With this bathe the neck and throat frequently, applying piece of flannel around the throat.

The following prescription has been used in many cases with pronounced success :

Muriatic tincture of iron,	. . . . .	2 drachms.
Chlorate of potassium,	. . . . .	1 drachm.
Tincture of belladonna,	. . . . .	$\frac{1}{2}$ drachm.
Simple syrup,	. . . . .	4 ounces.
Mix.	Take a teaspoonful every hour.	

When the disease assumes a chronic character, the following will be found an invaluable application :

Saturated solution of Sal. ammoniac, . . . 4 ounces.
Tincture cayenne, 1 ounce.
Mix. Gargle with this several times a day.

When the tonsils become enlarged and remain so, the following may be used :

Iodine, 1 scruple.
Ointment of roses, 1 ounce.

Apply a portion on a small brush to the tonsils, every morning and evening, and continue the application for several months. Or this :

Tannic acid, 20 grains.
Common salt, 40 grains.
Extract of blood root, 10 grains.
Ointment of roses, 1 drachm.
Mix and apply as before.

The following is sometimes beneficial : Simmer hops in vinegar until their strength is extracted, strain the liquid, sweeten it with sugar, and give it frequently to the patient until relieved.

Homœopathic treatment.

Aconite and belladonna.—These are generally the most appropriate remedies with which to commence treatment, particularly if the following symptoms are present. Violent fever, pulse full and bounding, great heat, thirst, restlessness, constant desire to swallow, the swallowing producing spasms in the throat, which force liquids out the nose, burning and pricking sensations, dryness of the throat ; pains shooting into the tonsils and ears, putrid and bitter taste in the mouth.

Bryonia.—Shooting sensations, with dryness of the throat and difficulty of speech, hoarseness, oppressive breathing, breaking and painful sensation of the throat, swallowing painful, some fever either with or without thirst, chilliness, pains in the limbs and back of the head. This may be given in alternation with *rhus*.

Chamomilla.—Especially when the disease is caused by taking cold or exposure to a draught of air while perspiring, swelling of the tonsils, hacking cough, flushed cheeks, or one cheek flushed and the other pale, fever in the evening, with flashes of heat, the glands of the neck under the chin, and tonsils being much swollen.

Lachesis.—This has been proved a very useful remedy when mercury and belladonna have been used without effect, and when the following symptoms are present: swelling and redness with a feeling of rawness of the tonsils and palate, dryness of the throat, constant disposition to swallow, sensation as of a tumor or lump in the throat, worse in the afternoon and morning, after sleeping or on very slight pressure on the neck, small ulcers on the throat and on the left tonsil.

Hepar sulphur.—In cases where the abscesses of the tonsils threaten to break, this remedy will hasten the abscess; may be given in the beginning of the disease when there is lancinating pains in the throat—in alternation with mercury.

Nux vomica.—It may be given when chloride does not relieve, and also when there is soreness, with a feeling of rawness, as if the throat had been scraped.

Capsicum.—In cases where *nux vomica* seems to be indicated but does not relieve, and when there are burning and roughness in the throat, with a feeling of stiffness and contraction, together with running of the nose and eyes.

The application of cold water will be found excellent, used in the following manner: In the evening when going to bed, place on the throat a wet bandage, covered with a dry cloth, keeping the bandage on during the day and changing it frequently.

In cases of persons subject to quinsy, sponging the throat

and breast with cold water every morning, will prevent or modify the attacks.

DIPHTHERIA.

To attempt a review of the literature of this malady would be a work of supererogation, and one I will not attempt. Very briefly then I will consider it in its Simple, Croupous, Ulcerative and Malignant forms.

Symptoms.

In its symptomatology we have—premonitory but not distinctive—*malaise*, slight sore throat, enlargement of the lymphatic glands behind the jaw. Fever occurs in the simple form, with difficulty of swallowing, headache, furred tongue, constipation. The fauces will have a very red or purple appearance, as also may the palate and tonsils. By the second or third day there may be present a whitish membranous deposit. From five to nine days these symptoms may continue, recovery following. The *croupous* is the form from which most children die, following, as it does, upon the measles and scarlet fever so frequently. Early symptoms are, as in simple form, but sometimes with violence from the beginning. Distress in the throat complained of. The tonsils and fauces are covered with a yellowish colored deposit, and much swollen. Not infrequently quite early in the attack this membranous inflammation extends to the larynx, as manifest by the usual symptoms of croup. A fatal termination may occur by asphyxia in a very few days. The *ulcerative* form is not very common, with it we may have destruction of the palate and tonsils, in a form described as gangrenous, or “putrid sore throat.” At the very commencement of the *malignant* form, we have intense headache, not infrequently vomiting, which is not common in the milder forms; great difficulty in swallowing, excessive enlargement of the glands, bleeding from nose and mouth, stomach and rectum; tonsils, pharynx and palate covered with a yellowish deposit which rapidly changes to ash color, brown and almost black and of

a very offensive odor. Suppuration and even sloughing of the tonsils may occur, at times the nostrils are involved, being swollen, lined with a false membrane emitting an acrid, fetid discharge. Great prostration at a more or less early period, pulse very rapid, face pale and livid, morbid heat of skin is followed by clammy coldness. Death usually occurs in from one to five days. It respects neither age nor sex and is certainly contagious in my judgment, notwithstanding this is a question with two distinct sides to it.

Treatment.

What shall I say as to treatment? In a literature so rich in "specifics" (?) which shall I select, and where draw the line? I have no formulated plan for treating these cases, but treat them, as in my judgment, the individualities of each case demands, generally, somewhere with in the following: if there is much constitutional disturbance, exudation, etc., I give from one (1) to ten (10) grains of hydrargyrum submuriate every one to four hours until its effects are markedly apparent in reduction of fever and general disturbed condition of throat. Alternately with this, say, once in two to four hours the following:

Chlorate of potass pulv.

Tinc. ferri muriate, each, 2 drachms.

Water

Glycerine, of each equal parts, enough to make 4 ounces

Dose, fifteen (15) drops to teaspoonful according to age.

If there is much exudation, I use the following wash two or three times daily.

Carbolic acid, 30 drops.

Sulphate of zinc, 1 drachm.

Water, 2 ounces.

Make a soft cotton swab, and a small wooden paddle;

with the paddle depress the tongue, then dip the swab in the wash and apply it thoroughly to affected parts, this done, I burn both paddle and swab, using new ones each time. Or if the patient is old enough, I sometimes prescribe the following gargle.

Alum pulverized and sulphate of zinc, each,	$\frac{1}{2}$ ounce.
Carbolic acid,	1 drachm.
Water,	$\frac{1}{2}$ pint.

This gargle may be used every hour or two, care being observed not to swallow any of it. I permit the patient all the ice desirable, a small piece at a time being held in the mouth. Feed well. I also use tonics, etc., as indicated. My success has been such as would by no means cause me to abandon my line, if line it may be called, of treatment. I also submit for your consideration and trial the treatments adopted by not a few among the many of my friends in the profession. Dr. Caroline R. Conkey is quite enthusiastic over her success. The plan she follows, is : " Fresh chlorine water must be made every day after the following formulary :

Chlorate of potash,	2 drachms.
Muriatic acid,	1 drachm.
Water,	8 ounces.

Put the chlorate into an eight ounce bottle ; on this pour the acid and cork quickly to prevent escape of gas, add water, at intervals as hot as convenient. Dose, teaspoonful in an ounce and a half of water to be gargled and swallowed every half an hour in severe cases. The dose may be swallowed without gargling if for any reason that it is impossible to gargle and may be sweetened to render it palatable to a child. The intervals between doses may be lengthened from one to three hours. When the membrane extends to nose or posterior nares, syringe with same solution. This constitutes my entire treatment and its success is invariable."

Dr. W. Hale White relates a case in which acid glycerine of pepsin was sprayed into the throat. The result was quite satisfactory, the pepsin seeming to soften and gelatinize the diphtheritic masses.

Dr. R. J. Jones says : Of the various remedies now used and advised while I have tried many, Monsel's solution of the sub sulphate of iron has proved the most efficient for checking the spreading of the false membrane and causing its removal. Brushed thoroughly with a camel's hair pencil, it does not burn or irritate, but causes a disagreeable pinching of the throat, and although the patients do not like it, they readily submit to its application from the relief it affords.

Dr. Sauchier relates his successful treatment of cases of diphtheria by the use of ten (10) to twelve (12) drop doses of tincture of iodine well diluted, every hour. This was continued as long as the fever persisted. After this the remedy was given at intervals until it reached three hours. He made local applications at least twice a day.

Dr. Weise recommends very highly a two per cent. solution of salicylic acid in diphtheria. This is a strongly antiseptic solution, but not a dangerous one. He employs the following formula :

Salicylic acid,	. . . . .	15 grains.
Rectified spts. of wine,	. . . . .	1 ounce.
Glycerine,	. . . . .	1 ounce.
To be used as a gargle.		

At the same time he uses benzoat of soda internally.

A writer in a French Journal advises tartaric acid as a local application in diphtheria. He says, the acid acting on the false membrane, changes it into a gelatinous mass, and this favors its expulsion.

The formula he uses is as follows :

Tartaric acid,	. . . . .	3½ drachms.
Glycerine,	. . . . .	4½ drachms.

Distilled peppermint water, . . . $\frac{1}{2}$ ounce.

Applications of this should be made every three hours, followed soon after by the use of lemon juice.

Chloroform in diphtheria.

Dr. Lathrop of New Hampshire, said before the American Medical Association, that he had experimented with chloroform largely, and finds it a highly useful agent. He uses it in diphtheria and other throat affections, applied on a piece of cotton attached to a piece of tube or penholder.

The patient usually required visiting no longer than four days, but the cases were not so malignant as had been reported in other localities.

No unpleasant effects had ever followed this plan of treatment, and the child in true diphtheria does not complain of smarting from the application of chloroform. He had used this plan of treatment in one hundred cases. Of course constitutional measures are added. Dr. McNeal, of Gettysburg, Pa., recommends the following :

Bromide of potassium,	. . . . .	1 drachm.
Chlorate of potash,	. . . . .	2 drachms.
Carbolic acid,	. . . . .	20 grains.
Water,	. . . . .	1 pint.
Use in an inhaler.		

Chloroform,	. . . . .	2 drachms.
Soap linament,	. . . . .	1 to 2 ounces.
Used locally.		

Dr. E. F. Hitchcock, of Rockhamptom, Me., uses equal parts of sulphurous acid and water in an atomizer. The proportions can be varied and the acid used as a gargle with cold effusions externally.

Dr. Guttman recommends the following :

Muriated pilocarpine,	. . . . .	$\frac{1}{3}$ to $\frac{2}{3}$ grain.
Pepsin,	. . . . .	1 to $1\frac{1}{4}$ grain.
Hydrochloric acid,	. . . . .	3 grains.
Distilled water,	. . . . .	$2\frac{1}{2}$ ounces.

One (1) drachm (60 drops) hourly for children.

Dr. J. Lewis Smith, in his latest edition of " Diseases of Children " speaks of it in these words: In most cases of diphtheritic inflammation of the fauces, the spray suffices for local treatment, but the following mixture, applied by a camel's hair pencil, is also very effectual, immediately converting the pseudo-membrane into an inert mass, and putting a stop to all movements of the bacteria which swarm in it, as I have observed under the microscope.

Carbolic acid,	. . . . .	8 grains.
Liquid subsulphate of iron,	. . . . .	2 to 3 drachms.
Glycerine,	. . . . .	1 ounce.

This may be used two or three times daily, between the spraying, or oftener without the spraying. It is not irritating (such an effect would condemn it).

Dr. Lamarro, of Saint Germain, has lately employed petroleum oil locally, with very encouraging results in an epidemic of diphtheria. Petroleum is a rapid solvent of the false membrane, and must possess distinct advantage under some circumstances. This fact, coupled with its antiseptic property, renders it a promising remedy, although its odor always renders its use disagreeable.

Homœopathic treatment.

Preventive measures.—Acid muriatic or baptisia with free ventilation and disinfectants—A moist atmosphere—such as it caused by a kettle boiling on the stove.

Powdered sulphur, burned on a shovel of hot coals, is efficacious in destroying the contagious particles of matter

which float in the air. Frequently sprinkle carbolic acid water about the room. Remove instantly all vessels containing evacuations either from the throat or bowels. All young children, as especially prone to the disease, should be sent out of the infected neighborhood if possible.

Aconite.—Dose every hour or half hour for high fever—pains in the limb and headache—with prostration.

Mercurius.—Throat deep red specks of false membrane over surrounding parts, cold in the head, and excessive secretion of saliva. Dose every two hours.

Baptisia.—A dose every hour and locally used as a spray, or with a camel's hair brush—the strong tincture twenty (20) drops to a half teacup of water.

Acid nitric.—When after the use of mercurius, patches of membrane continue to present themselves and the gums disposed to bleed. Dose every two hours and a gargle or spray of the medicine.

Arsenicum.—In all cases where the prostration is excessive. Dose every hour or half hour in a dessertspoon of water until re-action sets in. It should be combined with nourishing diet and stimulants.

Hydrastis.—Dose, every two hours with an injection of twenty (20) drops of Kieth's tincture to half a teacup of water syringed up the nostrils every two hours. Increasing debility, great sinking at the pit of the stomach and prostration; palpitation of the heart, rumbling of the bowels, belching of wind from the stomach, nose stuffed up, increasing hoarseness; excessive secretion of thick mucus from the nose.

Local treatment.

The application of pure glycerine by means of a camel's hair brush has been found valuable in removing the exudation from the throat, the membrane may be painted with acid muriate.

Nursing.

Frequent tepid spongings of the whole body, frequent

change of linen, friction, abundance of fresh air, free ventilation in the chamber and throughout the house. When food is rejected from pain and nausea, nutritive injections should be given—of beaten eggs and good fresh milk or the essence of beef one (1) ounce given every two hours. Spoons, cups, or glasses used by the patient, should be washed in hot water. During convalescence great care is required as well in general management as regards a digestive and generous diet.

DISEASES OF THE BRAIN, SPINAL CORD, AND THEIR NERVES.

INSANITY.

What are the causes on which what is known as insanity depends? This question is not without its difficulties. Insanity, of whatever variety, is only a symptom of disease of the brain. In its consideration, we have nothing to do with mind apart from its organ, the brain. Our knowledge begins and ends in *cerebral* phenomena.

According to Dr. Ray, insanity is a disease of the brain, inducing a prolonged departure from those modes of thought and states of feeling natural to the individual in health.

We will carry our analysis one step farther only, since to consider here, the various phases of insanity would needlessly confuse and protract this subject. The mind, so called, may for practical purposes be considered on three sides, making three grand divisions of its powers, viz.: the intellect, the emotions and the will. Having disposed of these preliminary points, we may go on to consider the causes, near and remote, of insanity. The first among the latter stands heredity. This we have not sufficient space to consider, and at best is obscurely understood. It must not be taken in too narrow a sense, for insanity may be called hereditary, if a

tendency to it is shown in collateral branches of the family tree. Instances of the disease in uncles, aunts, cousins, brothers, or sisters, may point to a family tendency as well as if parents and grandparents were affected. Many nervous diseases such as epilepsy, hysteria, alcoholism, neuralgia, and the like, should be taken account of in the search for hereditary causes. The question does not exclusively concern the existence of insanity in one's immediate ancestors, but relates to the prevailing family weakness.

One cause of insanity, not often mentioned, is found in a too early ossification of some or all the sutures of the skull, preventing that full and symmetrical development of the brain, important for perfect action.

With an enfeebled cerebral organization, what causes predispose to insanity in the individual?

The most frequent predisposing causes are, exhaustion from overwork, the various moral sources, such as grief, anxiety, disappointment, fear, *ennui*, the abuse of the stimulants, and excesses of all kinds. These causes may so act as to induce insanity in a healthy individual, but they are undoubtedly most efficient in the presence of an insane temperament.

Some of the proximate causes of an attack of insanity often pertain to the age of the individual, and a name is given in accordance with the time at which the attack occurs. There is an insanity of pubescence, and a climacteric, and senile insanity in both sexes, and in the female, puerperal, and other forms, connected with some special condition. Epilepsy, hysteria, neuralgia, and other neuroses, may suddenly induce insanity by a transference of their special irritations to the higher centres of thought and feeling. The poisons of gout, rheumatism, uremia, alcohol and the like, may prove exciting causes. Enforced loss of sleep is a very efficient cause, as it is also an early symptom.

Forms of insanity.

The tendency of epilepsy in ordinary cases, is, in the long

run, to loss of memory and imbecility. It often, at the time of the fits, gives rise to a form of mania of all others the most dangerous. The patient may be suddenly seized with a blind fury, leading him to the most terrible acts of violence and homicide. The frenzy may last five minutes or a week. It may come with the first fit, or only after years of epileptic attacks. Still more strange, it may take the place of the ordinary convulsive attack at any time.

Epileptic vertigo, or *petit mal*., which a person may have had for years without a suspicion of its true nature on the part of himself or his friends, is very fruitful of mental disturbance. In these cases there is no spasm, simply a momentary dizziness, and all is as before. The irritation, may at any time seize the higher centres of the brain, instead of the lower, producing delirium as transient as the vertigo. In this transitory mania, an act of violence may be done for which the patient is utterly irresponsible.

Uterine irritation very frequently affects the *morale*, or the emotional status of the patient, for a long time before giving rise to intellectual disturbance. Delusion and dementia may be indefinitely postponed. Peculiarities may arise at times becoming intensified to a frenzy, which sweeps the reason before it, resulting in a paroxysm of hysterical mania. These attacks may last for weeks, but are often transitory; and none but the immediate family can discover insanity in the amiable, intelligent, lady-like person who does the honors of her parlor with accustomed grace.

The three next forms are interesting, from their frequency and practical importance. Delirium tremens is not usually considered an insanity, and does not, by right, find admittance to hospitals for the insane. It is a self-limited disease, and seldom runs more than 72 or 96 hours. It is not therefore a prolonged departure from mental soundness. *Dipsomania* I take to mean a passion for stimulants, inherited or acquired, in which the will is powerless to resist a certain periodical craving for liquors. *Mania* from alcoholism is a condition of insanity induced by the prolonged or excessive

use of alcohol, and is due to the irritation, and probably organic change which that poison induces. The latter disease is as appropriate for treatment in a hospital, as any other form of mental disease.

The best illustration of *dipsomania* is a man whose mother was insane, and who for years has had periodical cravings for liquor, which he indulged in freely at such times, becoming slightly maniacal. In the intervals, he is sober, intelligent and successful in business. He has been repeatedly treated both, in an insane hospital, and in penal institutions. One of his attacks was replaced after months of abstinence by a long siege of melancholia, in which he nearly lost his life from exhaustion.

General paralysis with insanity.

This disease is quite common, and having been of late much discussed, like neuralgia and diphtheria, when they were popular medical novelties, it is often suspected when it does not exist. All sorts of mental diseases are attributed to softening of the brain, which is used as a synonymous term. It is often difficult, in its earlier stages, to be sure of a correct diagnosis, and an utterly incurable disease should not be hastily affirmed, of any case. As the disease progresses however, there can be no mistaking its true nature.

General paresis is, perhaps, the best term for this disease, as it signifies weakness rather than absolute loss of function, and better expresses that gradual impairment of physical and mental power which may exist for months before it is recognized for what it is. The speech is early affected, becoming, at last, clumsy, thick and hesitating. The gait grows feeble and occasional attacks of vertigo induce staggering which often leads to the belief that the patient is intoxicated. The memory fails by degrees, as the mind becomes affected by this creeping death, and the cohesion of ideas is partially lost. The mind runs into all kinds of unrealities. Mania is often a symptom of the earlier stages, and it usually assumes a peculiar type, in which the patient has vast ideas

of his wealth, amount of business done, increase of physical strength and the like, interrupted, perhaps, by occasional glimpses of the real state of things, which affects the patient very painfully.

All this tends slowly and surely to death—first of the mind, and then of the body. Sensation and motion are impaired from the first; the loss of memory makes him forget the circumstances of an accident almost as soon as received.

The pathology of this disease cannot be adequately described here. It will suffice to say, that it is a subtle and general change, which slowly affects the central nervous system, accompanied by congestion in the early stages, and leading to destruction, cell by cell, of the gray matter of the brain.

The causes of general paresis are found to prevail most among men, and at the most active time of life, from thirty-five to forty, in the majority of cases. Habitual intemperance, sexual excesses, overstrain in business, in fact, all those habits which tend to keep up too rapid cerebral action, are supposed to induce this form of disease. It is especially a disease of fast life, and fast business life, in large cities. It is preventible, in many cases, without doubt.

Mania under all its variations supposes an extensive and expansive activity of the mind. The disordered feelings and ideas tend to express themselves at once in action,

Melancholia on the other hand, is accompanied by depression, dejection, despondency and despair. The same causes may lead to it, as in a case of mania, but the symptoms are usually developed more slowly. There is oftener a history of debility and ill health, preceding them.

Melancholia often borders closely on dementia. It may for months, prevent speech or voluntary action. The patient is helpless, and either passive or obstinate, giving no sign of intelligence, unless a countenance gloomy rather than vacant is one. He would die of starvation without forcible feeding, and yet, after months, may recover, and remember much which occurred in his presence.

Dementia, secondary to other forms of insanity, is characterized by incapacity for deep emotion for natural feeling or earnest thought. The mental activity is superficial and irregular. There may be fixed ideas, systematized delirium or delusions, as they are called, as well as in chronic mania. There may also be outbreaks of brief excitement and violence. but they are not expressive of the ruling state of mind, as in the latter disease. Dementia may also be the result of long continued vicious habits or of premature decay in old age.

The physical symptoms which accompany insanity, do not in themselves necessarily indicate mental disease. They do, however, in connection with the mental signs, serve to show the stage and degree of insanity. The mental peculiarities are largely dwelt upon by writers, but the physician in dealing with it practically, is concerned most with the patient's physical state, and, contrary to popular notions, finds in every recent case, at least, ample indications for physical treatment. After a careful examination of the whole case, he takes little interest, or notice of, mental vagaries, except as they indicate the effects of treatment or the progress of the disease.

The patient's aspect, manner and actions, are a direct reflex of the mental state, and should be studied with care. Sometimes a mere peculiarity in some article of dress may satisfy an experienced eye of something wrong in the wearer. The strictly physical symptoms relate to sleep, appetite, digestion, circulation, temperature, respiration, strength and the like. The bodily functions in acute insanity are always deranged; strange sensations in the head and stomach are common; sometimes there is intense headache, with great heat of the head, quick pulse, restlessness, fever, dry and red or brown tongue. Extreme constipation or menstrual irregularity usually exists.

A careful examination of all the organs of the body is necessary to discover whether some local disease is not concealed by mental state. Disease of the heart, consumption,

Bright's disease of the kidneys and local or partial paralysis, should be especially looked for. In fact there is no safety in undertaking to treat insanity without a thorough examination of all the functions of the body.

Treatment.

Treatment consists in the medical and moral management of the patients. It differs from the treatment of other diseases, chiefly on account of the fact that every insane person having lost, in some measure, his reason, depends on others for guidance and control. This radical difference between an insane patient and sane one, arising from the peculiar functions of the organ affected, will always necessitate restraint in some form, for the sake of treatment, if not for safety.

It is a popular notion, that medical treatment is of little use in cases of insanity. The public is naturally at fault on this subject. Insanity has been, and still is, too often regarded as a mysterious affliction of the immaterial spirits quite removed from the ordinary category of disease.

Insanity is more amenable to treatment than most chronic diseases. It is functional in its character in a large number of cases. At the outset it consists in slight changes in the circulation and nutrition of the brain, and does not necessarily entail any visible change of structure.

By means of medicine we can annul pain and induce sleep, surely and safely extinguishing one function of the brain after another, until the nervous apparatus runs at its lowest speed, and barely suffices to keep life going; or we can so feed and stimulate as to carry life safely at high pressure, over many dangerous obstructions.

The medicines directly affecting the brain increase every year in variety and usefulness. Opium finds itself in the company of formidable rivals. The improved use of the old vegetable neurotics—belladonna, hyoscyamus, conium and stramonium—the discovery of ether and chloroform, the subcutaneous use of morphine and other remedies, the bromides

and iodides, lastly, chloral hydrate, have revolutionized the medical treatment of insanity. Our increased knowledge of the proper use of stimulants, high feeding, and the various tonics has increased our means of dealing with a disease formerly allowed to pursue its course unrestrained. The great importance of early treatment cannot be too much dwelt upon. I have repeatedly seen a threatened attack of insanity prevented by a timely prescription, and am sure that without such early interference, months of sufferings would have ensued.

That sleep should be induced at an early stage of insanity by means of medicine skillfully varied to meet the requirements of the case, cannot be too much insisted on. Patients have often been stupefied with bromide of potassium in the attempt to force sleep with a drug only adapted to quiet and relieve them, until it was hard to distinguish stupor from depression or dementia. Chloral hydrate has been given till exhaustion and threatened collapse followed what should have been refreshing sleep; the proper amount of sleep, the kind of medicine, size of the dose, and time of giving it should be determined only upon the best obtainable medical advice.

Constipation is a frequent accompaniment of incipient insanity as well as a troublesome complication in all its stages. The necessity of attention to this exceedingly harmful condition is not sufficiently recognized. It is a matter which requires advice and should never be left to the judgment of patient and friends. It may make all the difference between suicidal impulse and its absence in cases of melancholia. It is a matter of life and death, literally. Coma, paralysis and approaching death, disappear sometimes before a timely cathartic. The ways and means of relieving this condition are not to be lightly chosen.

The feeding an insane patient is strictly a part of his medical treatment, and the most important part, too. Food is tonic, sleep-producing, and directly curative, when properly used, in cases of insanity. It should not be left to be

given or taken at hap-hazard. The physician who feeds most skillfully will succeed best. In the acute stages of all forms of mental disease, there is a disturbance of the appetite. It is wanting entirely, or is fickle and irregular, or, rarely, inordinate. The patient's mind may be so pre-occupied by excited or delusive ideas, that he will not take time to eat. Some patients refuse to eat as a result of concealed delusion, or openly insist that their food is poisoned, the throat grown up, or attempt starvation as a means of suicide.

In cases manifestly incurable from the first, home treatment may be pursued as long as safety will permit, or the patient's means allow, remembering that an improved condition and increased comfort may often be obtained in hospital.

General paralysis with insanity is a form in which this may be attempted. It is incurable and recovery is not to be looked for in any case.

Epileptic mania may, in some cases be treated at home, but always under proper advice, since no form of insanity is more dangerous. The disease on which the maniacal excitement depends is practically incurable, and the mania, though likely to recur, is transient. It is also quite amenable to medical treatment. For these reasons, the patient may be cared for at home, under suitable restraint until it is found that mania accompanies the convulsive attacks as a rule, or is of so dangerous and outrageous a type as to demand seclusion in hospital. There is always more or less danger in a case of confirmed epilepsy that mania may unexpectedly ensue, and its victim is often possessed, for the time, by a blind fury, which attacks friend or foe indiscriminately. This mania, as we have before remarked, may occur suddenly, and independently of any known, or at least of any recent, convulsive attack, constituting the most common form of transitory mania. It is important to distinguish the epileptic element, when it exists, either as *petit mal*, or masked, or wandering epilepsy.

Senile insanity, being incurable may be treated at home,

but it is important to distinguish it from other forms of insanity occurring in old people, and which may sometimes be recovered from. Each case should be decided on its own merits, after careful consideration of all its bearings.

Imbecility, moral and intellectual and dementia, secondary to acute forms of insanity, being permanent states and the chronic insane of all classes, having had a thorough trial of hospital treatment, and being manifestly incurable, may be treated at home when circumstances permit.

Of the curable forms which justify home treatment, the following are the most common :

Insanity of pubescence, in the female, especially, depending on retarded menstruation, is often transient.

Hysterical mania may sometimes be treated at home. It generally occurs in females who have been subject for years to the nervous phenomena embraced in the term, hysteria. There is generally obscure nervous symptoms, such as spasms, tenderness of the spine, strange sensations of the throat and chest, dyspepsia, etc., sometimes, though not always, dependent on local uterine disease, and disordered menstruation.

Hysterical mania profoundly affects the emotional and moral nature, leading to all sorts of strange manifestations of mind, just as hysteria affects the body with strange sensations and symptoms.

The physician who undertakes to contend with this disease should not be hampered by the experimental intrusion of kind, but mistaken sympathizers. He should be allowed to regulate this most powerful moral element in the treatment according to his own judgment, otherwise he will utterly fail. He himself needs the moral support of the family, or he will be unable to control the patient.

Mild forms of *puerperal mania* are sometimes treated at home with success. They depend on a condition of debility and exhaustion which may be removed by careful treatment when no strong hereditary tendency exists. There is, however, great danger of relapse, and, in the convalescent stage,

such patients need most the protection of hospital surroundings. Some imprudence is sure to be committed by which months of mental suffering, if not permanent insanity, is induced.

Simple melancholia, of a mild type, due to nervous exhaustion, may sometimes be carried through at home, especially if the resources afforded by change of scene be added. In well-selected cases, travel is a valuable adjuvant to treatment; it affords mental refreshment of a useful character when the patient is not too depressed to respond to this kind of stimulation. It corrects bad states of bodily health, which may be at the foundation of the mental trouble. Fresh air, exercise, new and varied diet, promote sleep and improve the physical condition, while the mind is pleasantly excited by new interests.

Climacteric insanity in females, if distinctly dependent on the "turn of life," may sometimes prove transient, and pass away, under suitable treatment at home. It often happens, however, that a permanent failure of the mental powers begins at this time, and it is unsafe, without the most careful consideration, to predict a recovery at the close of this period. In men an indefinite term of ill-health and depression often occurs about the age of sixty, depending on a variety of causes. The waning powers of life, disappointed ambition or business losses, the reaction from that overstrain which men in active life endure, till, warned by advancing years, they retire too suddenly, concur in producing a state of depression and *ennui*, which may amount to actual insanity. Men who have lived and worked as if life had no end, on its near approach cannot conform their mental habits to its calm anticipation. A period of mental disturbance at this time may be the precursor of senile dementia in persons predisposed to insanity. On the other hand, after a longer or shorter interval the exhausted mental powers are recruited, and their operations gradually readjusted to new interests and occupations, and the patient lives out his days in cheerfulness and comfort.

SLEEPLESSNESS (*Insomnia*).

The causes that produce this serious trouble are various. Not infrequently the tendency to it is inherited with a delicate nervous organization, and overwork will increase it. It is difficult for the sufferer to know just how much work, mental and physical, may be accomplished without producing the unpleasant result. For one so constituted a most watchful care becomes important, and the most interesting employment must be turned away from at the first sense of weariness.

There is no fact more clearly established in the physiology of man than this, that the brain expends its energies and itself during the hours of wakefulness, and that these are recuperated during sleep. If the recuperation does not equal the expenditure, the brain withers—this is insanity. Thus it is that, in early English history, persons who were condemned to death by being prevented from sleeping, always died raving maniacs, and those who are starved to death become insane; the brain is not nourished, and they cannot sleep.

These practical inferences are three: 1st. Those who think most, who do the most brain work, require the most sleep. 2d. The time “saved” from necessary sleep is infallibly destructive to mind, body, and estate. 3rd. Give yourself, your children, your servants, give all that are under you, the fullest amount they will take, by compelling them to go to bed at some regular, early hour, and to rise in the morning the moment they wake; and within a fortnight, Nature will unloose the bonds of sleep the moment enough repose has been secured for the wants of the system.

This is the only safe and efficient rule.

Physicians who used to prescribe bromide of soda or potassium for sleeplessness, now urge their patients to take beef-tea instead.

At first beef tea used with some light bread or biscuit broken in it, sipped from a spoon as warm as it could be taken. Afterwards, milk just scalded, not boiled, substituted,

and make it more easy of digestion, a tablespoonful of lime water was added to half a tumbler of milk.

When once the habit of wakefulness is broken up, the beef tea or milk may be taken cold, but not iced. If you are always a poor sleeper it will be well to continue this late supper as a permanent thing in your daily life.

Provide for it in the case of aged and delicate persons who may be under your roof, and in this way you may be able to relieve one of the ills of life.

Homœopathic treatment.

Coffea and belladonna.—Either alone, or in alternation, a dose (four (4) globules) every hour, will generally be sufficient to allay the excitement of the nervous system.

Ignatia.—When caused by grief, or indigestion.

Hyosciamus.—Especially after severe illness.

Opium.—After fright, or fear, or where frightful visions appear before the eyes when closed.

Pulsatilla.—When caused by having eaten too freely.

Aconite.—When caused by anxiety and agitation.

Nux vomica.—When from study, or from drinking tea or coffee.

HEADACHE.

Much might be written about this common malady. I will present for trial a number of remedies that have been found valuable ; offering running comments on their indications and applications as they in turn are considered.

Two (2) grains citrate of caffeine, in capsule, taken every half hour is a very effectual remedy in nervous and sick headache. One (1) or two (2) doses are often sufficient to give complete relief. The only objection to its use is sleeplessness which sometimes results if it is taken in the evening. It is preferable to guarana, as being hardly ever rejected by the stomach.

The following according to Dr. W. W. Carpenter is very effectual in most forms of headache :

Muriate of ammonia,	. . . . .	3 drachms.
Acetate of morphia,	. . . . .	1 grain.
Citrate of caffeine,	. . . . .	30 grains.
Aromatic spts. of ammonia,	. . . . .	1 drachm.
Elixir of guarana,	. . . . .	4 ounces.
Rose water,	. . . . .	4 ounces.
Mix.	Dessertspoonful every ten or twelve minutes.	

In nervous headache, Dr. W. A. Hammond, pre-eminently a leading authority on nervous troubles, states the value of various drugs as follows.

Oxide of zinc is of great value. Ordinary doses, two (2) grains, three times a day, after meals; maximum dose five (5) grains. It is best given in the form of pills.

Nux vomica is preferable to strychnia. Dose, one fourth ($\frac{1}{4}$) grain after each meal. If the patient be chlorotic (bloodless) it is well to combine a grain of reduced iron and half ($\frac{1}{2}$) a grain of sulphate of quinine. Bismuth in the form of subcarbonate will often take the place of oxide of zinc. Dose two (2) grains after each meal.

Bismuth probably aids digestion more than any mineral tonic, and is of use when there is gastric disturbance.

The bromides are serviceable when the nervous system has been irritated; when if exhausted they do harm. Phosphorus is very useful in most forms of nervous headache. The best results are obtained from diluted phosphoric acid, in doses of thirty (30) drops, largely diluted, three times a day, after eating; or phosphide of zinc, one-tenth ($\frac{1}{10}$) grain, in pill, three times a day. Arsenic, as a nerve tonic, stands next in value to zinc. Dose, five (5) drops in Fowler's Solution three times a day, after meals.

Galvanism is sometimes valuable but by no means a specific. The constant current should always be used, being careful to avoid too great intensity, lest amaurosis be produced.

Dr. T. Lander Brunton, editor of the *London Practitioner*, says: "The administration of a brisk purgative, or small

doses of Epsom salts, three times a day, is a most effectual remedy for frontal headache when associated with constipation ; but if the bowels be regular, the morbid process on which it depends, seems to be checked, and the headache removed even more effectually, by nitro muriatic acid, diluted ten (10) drops in a wine glass of water or bicarbonate of soda, ten (10) grains in water, before meals.

If the headache be immediately above the eye brows, the acid is best ; but if it be a little higher up, just where the hair begins, the soda appears to be the most effectual. At the same time the headache is removed, the feeling of sleepiness and weariness, which frequently leads the patient to complain that they rise up more tired than they lie down, generally disappears.

Females who have suffered many years from sick headache, have been greatly benefited, if not cured, by the administration of ten (10) minim doses of tincture of Indian hemp, three times daily before the attacks. This is well worthy of trial.

In headache due to determination of blood to the head and in fever, the following simple treatment is to be commended :

Put a handfull of salt into a quart of water, add an ounce of spirits of hartshorn and half an ounce of spirits of camphor. Cork the bottle tightly to prevent the escape of the spirit. Soak a piece of soft cloth with the mixture and apply it to the head ; wet the rag fresh as soon as it gets heated.

Two (2) teaspoonfuls of powdered charcoal well stirred in a half a glass of water and drank at once, is a valuable remedy in sick headache from sour stomach, flatulence, etc.

Minimum doses of iodide of potassium are of great service in frontal headache. A heavy dull headache, situated over the brow. and accompanied by languor, chilliness, and a feeling of general discomfort, with distaste for food, which sometimes approaches to nausea, can be completely removed by a two-grain dose dissolved in half a wineglass of water, and this quietly sipped, the whole quantity being taken in

about ten minutes. In many cases the effect of these small doses has been simply wonderful. A person who, a quarter of an hour before, was feeling most miserable, and refused all food wishing only for quietness, would now take a good meal and resume his wonted cheerfulness. The rapidity with which the iodide acts in these cases constitutes its great advantage. I can bear testimony of the excellence of this remedy from personal experience. For periodic headache :

Dextro-quinine,	. . . . .	1½ drachms.
Sulphate of morphine,	. . . . .	1 grain.

Make sixteen (16) pills. Take one after each meal. Or :

Dextro-quinine.	. . . . .	1½ drachms.
Sulphate morphine,	. . . . .	1 grain.
Hydrochloric acid, diluted, sufficient quantity.		
Elixir of liquorice root,	. . . . .	2 fluid ounces.
Rose water,	. . . . .	2 " "

In the case of a boy suffering from sick headache, Dr. Roehring says : He gave the boy, who, in consequence of the severity of the pain, was not able to leave his bed, ten (10) grains of the salicylate of sodium every three hours, and was surprised to see the patient the next day in his tent, with smiling face. The boy admitted that he for years had not been feeling so well as he did then. The remedy was continued, but in less frequent doses, for a few days longer ; the headache did not return. Several months later Dr. Roehring wrote to the school-teacher of the boy, and was informed that the latter had, during all this time, been free of his former pain, that he was much brighter than formerly, and evidently enjoying the best health.

Congestive headache.

Bromide of ammonia,	. . . . .	1 drachm.
Aromatic spirits of ammonia.	. . . . .	½ "
Pure water,	. . . . .	1½ "

To be taken on rising in the morning.

Homœopathic treatment.

Aconite.—Red bloated face, burning constructive pains especially over the root of the nose.

Belladonna.—Pains over the eyes, with violent throbbing, and pressure as though the head would split open ; cannot bear the least noise, light or motion.

Bryonia.—Pain worse when moving, sensation as though the head was being compressed, when produced by bad weather or heat.

China.—Aggravated by contact, scalp very sensitive to the touch.

Mercurius.—Worse at night, and when getting warm in bed.

Nux vomica.—From spirituous liquors, excessive study, constipation. worse when stooping in the open air, or after eating ; head feels very heavy.

Pulsatilla.—Pale face, worse during rest or in the evening ; better in the open air, shooting, tearing humming in the ears. In cases where there is chilliness, with aching in the head, heaviness of the eyes and lids ; pallor, loss of strength and prostration, irritability, inability for the least thought or application, frontal headache ; giddiness, coated tongue, bitter taste ; empty feeling in the stomach, disagreeable breath, dull pain in the bowels, bilious evacuations, with considerable flatus, gelseminum may be given with advantage, a dose every two or three hours.

PARALYSIS—*Palsy*—*Shaking palsy*.

It were impossible for us, in a work like the present, to offer anything more than a very general idea of palsy and of its treatment.

By paralysis, or palsy, is meant a total or partial loss of sensibility or motion, or of both, in one or more parts of the body. All paralytic affections may be divided into two classes ; the first including those in which both motion and

sensibility are affected ; the second, those in which the one or the other only is lost or diminished. The former is called perfect, the latter imperfect paralysis ; again the paralysis may be general or partial, as it affects the whole body or only a portion of it. Partial paralysis is divided into *hemiplegia*, when it is limited to the lateral half, and *paraplegia*, when it is confined to the inferior half of the body. The term *local paralysis* is used when only a small portion of the body is affected, as the face, a limb, a foot, etc.

There are also certain forms of paralysis arising from the use of metallic poisons, as *mercurial palsy*, and *saturine* or *lead palsy* ; and lastly, there is a peculiar affection known as, *paralysis agitans*, or shaking palsy.

Paralysis from apoplexy generally occupies one side of the body ; when it arises from disease of the spinal marrow, the lower extremities only are affected ; but in many other cases the palsy comes on more or less slowly and compromises certain muscles, leaving others of the same part untouched ; the palsy likewise may be complete or incomplete ; in the former case the muscle or muscles attacked are unable to affect any movement whatever ; in incomplete palsy the power of motion is much diminished, but not altogether lost.

Causes.

Many diseases of the brain and spinal marrow may excite it, such as tumors, inflammation, with softening of the mucous substance, injuries caused by external violence, etc.; palsy may also arise from a great variety of causes, the chief of which are pressure on some particular nerve, cold, the action of poisons, whether metallic or animal, sexual indulgences, derangement of the digestive functions, worms, etc.

When palsy occurs without having been preceded by an attack of apoplexy, it often comes on in a gradual manner. Occasionally the symptoms indicate some disturbance of the circulation within the head ; the patient complains of severe

headache, tingling in the ears, flushing of the face, and throbbing of the arteries, which supply the head with blood.

In other cases the loss of power over the muscles takes place suddenly, being preceded by a kind of fit or momentary loss of consciousness, which bears some resemblance to an attack of apoplexy.

General paralysis.

General paralysis, or complete loss of sensation and motion of the whole system, cannot take place without death immediately resulting; but this term is usually applied to palsy affecting the four extremities, whether any of the other parts of the body are implicated or not.

Hemiplegia.

This term is used to denote paralysis of one side, extending generally to both the upper and lower extremities. It is the most common form of palsy; the left suffers more frequently than the right side. When only one extremity suffers, it is generally the arm. Very rarely, the upper limb of one side and the lower of the opposite is affected, forming what is termed *transverse* or *crossed palsy*.

Paraplegia.

Paraplegia, or paralysis of the lower half of the body, most frequently commences slowly and insidiously, with weakness and numbness of the feet and legs, or with tingling of these parts, unattended by pain. By degrees the weakness increases, until there is complete loss of sensibility and motion in the lower extremities, with paralysis of the bladder and rectum.

Local paralysis.

Of the different varieties of local palsy, I shall only mention paralysis of the face. As one-half only of the face is affected, the appearance is very striking, the features on the paralyzed side being blank, unmeaning, and void of all ex-

pression. It is generally free from danger, being but rarely connected with cerebral disease ; exposure to cold is a frequent cause of it.

Lead palsy.

The poison of lead appears to exert some peculiar noxious influence over the nerves of the forearm and hand ; in consequence of which the extensor muscles of the hands and fingers become paralyzed, so that when the arms are stretched out the hands hang down by their own weight, or, as the patients say, the wrists drop. The inferior extremities are very rarely affected. The sufferers frequently experience attacks of lead colic. A characteristic symptom of the presence of lead in the system is the existence of a blue or purplish line round the edges of the gums, just where they join the teeth.

Paralysis agitans or shaking palsy.

Paralysis agitans, or shaking palsy, is characterized by a continued shaking—usually commencing in the hands and arms, or in the head, and gradually extending over the whole body. The disease progresses slowly, but when far advanced, the agitation is often so violent as to prevent sleep ; the patient cannot carry food to his mouth ; swallowing and chewing are performed with difficulty ; the body is bent forward, and the chin bent on the breast ; the urine and fæces pass involuntarily, and coma with slight delirium closes the scene. Many cases, however, remain stationary during the remainder of the patient's life, except that the disease is worse at some time than at the other.

Treatment.

As paralysis is only the effect of some morbid lesion in one or other of the nervous centres, our treatment must be directed to the condition on which it depends.

Especial attention must be paid to the exciting cause of the disease, and to its nature ; that is to say, as to whether

it depends on disease of the brain, of the spinal marrow, or merely of the nerves distributed to the palsied part. All exciting causes must be avoided or removed. Recent paralysis, connected with diseases of the brain, must be treated in the way described under the term apoplexy. In that form of the disease which depends on some affection of the spinal marrow, much benefit may be expected from the use of blisters along the lower part of the spine.

In *hemiplegia*, even when seen early, it must not be forgotten that the mischief is done. Benefit may be expected from active cathartics, or stimulating purgative enemata. Some authors recommend blisters to the scalp or to the nape of the neck, or the use of a seton. I should also try alterative doses of mercury, with iodide of potassium, etc. When the paralysis becomes chronic, stimulants, especially such as act on the paralyzed parts, must be had recourse to. Strychnia in small doses (the twentieth ($\frac{1}{20}$) or thirtieth ($\frac{1}{30}$) part of a grain thrice daily) may be cautiously tried, if we can reasonably hope that there is no disease of the brain. Or local stimulants may be employed; thus frictions with the hand or flesh-brush, and stimulating liniments of turpentine, ammonia, tincture of cantharides.

The iodide of potassium acts as a curative agent in lead-poisoning, by converting the lead into a form which can again be readily taken up by the blood, and evacuated by one of the natural outlets; secondly that the iodide acts more speedily in conjunction with galvanism, when employed for the relief of lead paralysis.

In addition to the iodide of potassium—five (5) grains, thrice daily—the patient may use warm baths, friction to the paralysed limb, and exercise in the fresh air. To prevent this disease, Liebig recommends all workers in lead to drink daily, sulphuric acid lemonade. This acts probably by converting the salt of lead, as it enters the system, into an insoluble sulphate.

As regards the cure of *paralysis agitans*, I can say but little, since I know of no measures likely to do much good.

I should, however, try the effects of pure air, nourishing diet, baths, ferruginous tonics, and occasionally opiates.

It is of importance in this variety of palsy, to give careful attention to all hygienic measures. Nervine tonics have been largely employed, but those which have found most favor were iron, strychnia and hyoscyamus. The persistent application of the continuous galvanic current seems to have been serviceable in some cases.

As a liniment use the following :

Oil of turpentine,	. . .	2	tablespoonfuls.
Spirits of camphor,	. . .	2	"
Water of ammonia,	. . .	2	"
Olive oil,	. . .	2	"
Mix.			

Homœopathic treatment.

Rhus tox. and causticum are valuable remedies.

If the paralysis is caused by loss of fluids, give china, ferum, sulphur.

If from the suppression of an eruption, or customary discharges, give lachesis, causticum, sulphur.

If from apoplexy, give ipecac, lycopodium, lachesis.

If the muscles of the face are paralyzed, belladonna, causticum, graphites.

If the muscles of the tongue, belladonna, stramonium, hyoscyamus, opium, lachesis.

If the muscles of the arms, belladonna, nux vomica, opium, lycopodium, lachesis.

If the muscles of the lower limbs, cocculus, nux vomica, opium, stannum silicea.

Electricity and Galvanism are extremely useful agents in the treatment of this disease. The patient should bathe frequently in cold water.

ATAXIA—LOCOMOTOR—*Loss of power of co-ordinate movement.*

This is a name given to a disease which has been confounded with paralysis of the lower limbs. It is not properly a form of paralysis, although it arises from an affection of a part of the spinal cord.

Symptoms.

Dr. Bernhardt of Berlin has tabulated fifty eight selected cases of locomotor ataxia, for the purpose of determining important symptoms. He finds the first symptoms to be a feeling of lassitude, vertigo when the eyes are closed, loss of sensation, lancinating pains and paralysis of the bladder. The gait in walking is uncertain, and staggering. Sometimes the legs are jerked forward or thrown out like a person balancing on a tight rope.

Causes.

Over exertion, sudden drenchings and colds. It has followed injury to the loins. Continuous hard work, and shock have also undoubtedly caused it.

Treatment.

Phosphide of zinc has been used with great benefit. The drug was given in doses of one-tenth ($\frac{1}{10}$) of a grain per day.

Great help has been found in the use of electricity and systematic massage. Phosphoric acid, nitrate of silver and sometimes strychnine have been beneficial. None but a skillful physician can be expected to tell this disease from paralysis.

A recent authority states that "not one medicine deserves any confidence, so far as curing the disease goes"—and all agree that of the remedies spoken of above viz: electricity and massage are the most beneficial.

The chapter of treatment is unfortunately but a very short one; for, as a rule, whatever we may do, ataxia follows a progressive course. However, there are some cases in which not only is it possible to relieve the patient, but also

to delay the progress of the disease. The treatment which succeeds best, and which is generally advised, is that which has for its base iodide of potassium. Nitrate of silver is likewise a good means, employed concurrently with iodide of potassium, although it has not always fulfilled the promise given by it.

Homœopathic treatment.

Electricity and galvanism, medical rubbing and passive movement of the limbs conjoined with the medicines indicated, hold out more than an expectation of warding off a complete development of the disease, and even of curing it when it has made itself felt. The clothing must be warm and the diet generous; and the limbs have rest as they become incapacitated for movement. Cod liver oil is generally given with advantage.

When the patient is able to get about, he should never venture out without crutches, or a friend's arm to lean on.

Gelseminum.—Especially applies to the premonitory signs. Everything looks blurred, difficulty of reading in an evening, drooping of the eyelids, fugitive pains, difficulty of walking, such as is produced by inebriation. A dose, twice a day, and the spine well rubbed, night and morning, with a liniment of gelseminum.

Belladonna also applies to the difficulty of walking, the eye symptoms, and the incontinence of urine. A dose twice a day with local application as above.

Arsenic may be tried with success when nothing else relieves the neuralgic pains, and when the patient suffers from debility and prostration. A dose, twice a day.

Cimicifuga.—Specially adopted for rheumatic and hysterical constitutions; as it applies in such to the eye symptoms, and eminently to the amaurosis, and generally to the rheumatic-neuralgic pains. A dose, twice a day with a liniment of the same.

CORPULENCE (*Fatness, Obesity*).

Corpulence, though giving no actual pain, presses with considerable force upon the abdominal and other viscera, and hinders, if it does not wholly arrest the freedom of action. Nor is this the only evil : for by the development of adipose or fatty matter in the throat, it may, by pressing upon the *eustachian* tubes, stop them up, and thus produce deafness. Fatty accumulations, also, in some cases affect the eye and sight, and in others interfere with and lessen the muscular power of the heart. It must therefore be obvious that obesity is not only an uncomfortable burden, but in some cases, at least, a very serious disease ; and the question naturally arises as to its causes and cure.

In the processes of digestion, starchy food is largely changed to sugar, and sugar to fat ; hence the principal causes in connection with nervous and mental inactivity which tend to corpulence, especially in advanced life, may be found in an excessive or over use of those articles of food which contain starch and sugar. In the cure of obesity, common sense would therefore most clearly indicate, that all fat-producing articles should be withheld from the diet of the patient, and that nervous and mental activity should be largely increased. It is a fact that those persons have the strongest muscles, and are the firmest built, can endure the most, and, generally, last the longest, who are not obese.

It has been said all the flesh and all the fat we ever gain is accomplished during sleep. The infant is usually fat, and it sleeps the greater part of its time. The fat person, also, sleeps very much. Old persons sleep but little, they lose the rotundity of body which characterized them in middle life.

This is not the case where such persons sleep as well as they did when they were younger.

The conclusion, then, to be drawn from these facts, is, if any desire to lose fat, and become thin, they must sleep but little. This reduces obesity faster than any other means can.

The best remedy for obesity is said to be to keep cool by day and night, sleep little, moderate indulgence in eating and drinking, and plenty of exercise.

Some kinds of food produce more fat than others. The following dietary has been suggested as one that will be found useful, and in diseases that are in any way influenced by a disordered condition of the hepatic functions. Bread, except in the form of dry toast, butter, milk, sugar beer potatoes, parsnips, beet-root, turnips, carrots, veal, pork, herrings, eels and salmon are among the things to be abstained from, on account of their containing starch, saccharine, or oily matter, or from their indigestibility under the circumstances. On the other hand, beef, mutton, lamb, venison, poultry, game, fish, (with the exceptions already made), eggs, if not hard boiled, green vegetables, plain boiled rice, dry toast, and rusk in small quantity, several varieties of fruit, old cheese, occasionally and sparingly, tea without milk or sugar, and various other articles may be used with advantage; due regard being had to regularity, as to the times of eating, and to the quantity eaten.

Dr. M. Milton states that he has been successful in treating epilepsy combined with and dependent upon obesity, by the use of Gulf-weed, in doses of two (2) grains of powdered extract every two hours. The Gulf-weed is especially useful in the treatment of obesity. Combined with a milk diet and diminution in salted and solid food, it acts very rapidly in reducing flesh without weakening the patient.

Homœopathic treatment.

The diet should consist as much as possible of the following: Bread, stale or toasted, and always taken with as much crust as possible, biscuits made without sugar, bean meal and game, gravy, soups, farinaceous puddings. Neither potatoes, carrots, turnips or parsnips should be taken; all other vegetables are allowed. Water is the best drink; as well as black tea, without milk or sugar, and cocoatina or coffee in the same way.

DELIRIUM TREMENS (*Dipsomania, imbecility.*)

This disorder arises from excess in drinking spirituous

liquors, or from the abuse of opium; rarely from other causes. It comes on generally after a debauch, or in drunkards, in consequence of giving up their accustomed stimulus too suddenly.

Symptoms.

In some cases delirium is the first symptom observed; but in general there are certain premonitory signs, indicative of its approach. The patient is restless, peevish and cannot sleep sound; his manner becomes hurried and abrupt; and appears low spirited. After two or three days or a week in this state, his ideas become confused, he is exceedingly restless, and there is an appearance of wildness in his countenance. The hands and sometimes the whole body, are in a constant state of tremor, the tongue is also tremulous, and there is a twitching motion of the tendons at the wrist. If the patient sleep it is only for a short time; he awakes suddenly, alarmed by some frightful dream. He fancies that there is some mischief plotting against him, or that his affairs are going wrong. When delirium is fully established, he cannot sleep and attempts frequently to get out of bed. The hallucinations attending this disease are always of a desponding character.

It is of the utmost importance that this should not be mistaken for inflammation of the brain; it is to be distinguished from other affections of the brain by the absence of pain, the trembling of the hands and tongue, the starting of the tendons at the wrists, the peculiar character of the delirium, and the knowledge of the previous habits of the patient. On the other hand, a patient with inflammation of the brain has strong full pulse, hot skin, flushed face, red eyes, dry and red tongue; he suffers from a distressing intolerance of light and sound, and the delirium is generally furious.

The length of time required to run its course, is very uncertain, but it generally terminates within a week, and is not a dangerous disease when judiciously treated.

Treatment.

Sulphate of quinine,	.	.	.	.	8 grains.
Sulphate of morphine,	.	.	.	.	1 grain.

Mix and divide into four powders. Dose, one powder every hour, or in severe cases, every half hour, for the first two or three days. After a while lengthen the interval between the doses, so that the morphine will not have too much of an effect upon the system.

Give one-third ($\frac{1}{3}$) of a grain of morphine. If this does not have the effect to quiet the patient, give thirty (30) drops of laudanum, every two hours until sleep is produced. Hop tea may be drank freely, and a grain of opium, given every three or four hours. In some cases warm baths, continued for a number of hours, and cold applications to the head, will be found beneficial.

In debilitated subjects commence at once with the administration of the easily digested foods, small quantities, frequently repeated.

If there is irritation of the stomach it may be combated by the administration of ice and of small quantities of soda water. One of the best modes of commencing feeding is by the administration of milk, mixed with one third of its bulk of lime water; give it in small quantities at frequent intervals.

Bromide of potassium in twenty (20) grain doses, repeated every two or three hours till sleep.

Homœopathic treatment.

Opium is the principal remedy. Give one (1) or two (2) drops of the diluted tincture, every hour or two, for at least twenty hours. Other remedies which may be used after this, are belladonna, nux vomica, hyossciamus, stramonium and digitalis.

Each remedy should be given for at least twenty-four hours, and repeated every three or four hours, six (6) globules for a dose.

If the patient sees frightful images and visions in his sleep and cries, give *calcareæ carbonica*.

If nothing will induce him to sleep, give arsenic and lobelia in alternation, a dose every one or two hours.

INFLAMMATION OF BRAIN (*Cerebritis, meningitis, encephalitis.*)

Brain fever, or inflammation of the brain is distinguished by different names among medical men, according to the part of the brain affected. The above are the names of the most common types of the disease. Of course in all cases, where the symptoms described are found it would be better to call a skillful physician.

It is scarcely possible for us to tell inflammation of the brain—*cerebritis*—from inflammation of the membrane around the brain—*meningitis*. Fortunately, however, it is of very little, if any, practical importance, as the two affections are almost always combined; and if they were not, if judicious treatment be given for one, it will not be far out of the way for the other.

Inflammation of the brain is a morbid process which gives rise to more or less complicated phenomena during life, while after death traces of its powers are to be detected.

Causes.

The usual causes of inflammation of the brain are; injuries done to the head by blows or falls; great excitement; exposure to excessive heat or cold; excess in drinking spirituous liquors; suppression of the menstrual discharge, or of that from piles. It often comes on in the course of fevers, rheumatism, small pox, scarlatina, and other diseases of the skin, and may be brought on by certain diseases of the ear.

Symptoms.

There are in general certain symptoms which give notice of its approach, namely, head-ache, attended by a sensation

of weight and fulness of the head, slight giddiness, ringing in the ears, occasional drowsiness, confusion of ideas, irritability of temper and disturbed sleep. The face is more or less flushed, the head feels hotter than natural, and any unusual noise or strong light annoys the patient.

After chills or shivering, which in general precede all inflammatory diseases, strong symptoms of fever come on. The skin becomes hot, the face much flushed, the eyes red, and the pulse full and hard. The patient is then very restless; and light, and the slightest noise are insupportable to him. As the disease advances, the first becomes urgent, the tongue white, the urine high colored, and the bowels constipated. In the majority of cases there is irritability of stomach, accompanied by vomiting. At length spasms of the face and limbs, and the most furious delirium come on, and the pupils of the eye remain contracted. One or both arms first and then the legs become stiff and contracted, and occasionally convulsed. When the limbs are in this rigid state, any attempt to straighten them, or even any effort on the part of the patient to move in bed, is attended with severe pain.

In the majority of cases inflammation of the brain reaches its height about the third or fourth day, and generally terminates fatally within a week or ten days.

Treatment.

Perhaps in no other disease has there been a more radical change in the treatment than in this. The first step is to give a cathartic and I would recommend the following as efficient and free from danger.

Oil of croton,	. . . . .	4 drops.
Sugar,	. . . . .	2 drachms.
Mucilage of gum arabic,	. . . . .	1 ounce.

Give a teaspoonful every fifteen or twenty minutes until an action is had on the bowels.

Ice water should be allowed freely. The hair must be cut short and cold lotions or ice applied to the head ; pounded ice in a bladder applied to the head is an excellent thing, and should not be neglected. At the same time it must be remembered that cold will powerfully depress, hence there must be some discretion used in the use of it. If ice cannot be had, a small stream of cold water may be poured upon the crown of the head for several minutes at a time, then discontinued for a few minutes, and again applied, using proper caution not to depress the patient.

While the cold is being applied to the head the feet should be, if possible, immersed in warm water ; if this cannot well be done on account of the intractability of the patient, bottles or jugs containing hot water should be placed to his feet.

I have observed most excellent effects from the application of flannel cloths rung out of hot water and applied to the head repeatedly. Indeed, I prefer hot to the cold treatment. It is more kindly received by the patient. The philosophy of the treatment is, that by moist applications the peripheral (external) vessels are relaxed and enlarged thereby permitting the disgorgement of the over distended, deep seated vessels of the brain, by thus relieving the pressure the inflammation is reduced.

The body during the febrile excitement should be sponged in warm water. When the inflammatory stage is over, blisters can be applied to the scalp—first cutting the hair very short. Mustard plasters should be applied to the feet and calves of the legs. I question, however, the excellence of this line of treatment. During the depression, following the inflammatory state—great care should be taken that the system is kept up by nourishment. Great care must be experienced during convalescence. Patients, recovering from this disease are very easy to relapse, and a relapse is difficult to overcome. In fact the disease is a very dangerous one and must be watched closely.

Homœopathic treatment.

Cold water is of first importance. It should be applied to the head regularly, and the head should not be allowed to become hot. It is better to use cold water than ice.

Aconite.—When the patient has high delirium, burning pains in the head, particularly in the forehead, face red, eyes bloodshot, skin hot and dry. If, after six hours, there is no improvement, belladonna should be given in alternation with aconite, and especially when the following symptoms are present: great heat of the head, face red and bloated, violent beating of the arteries of the neck and temples, dryness of the mouth, tongue and throat; swallowing difficult, nausea and vomiting, dizziness, sensitiveness to noise and light; eyes bloodshot and brilliant, with a wild expression, violent delirium, diarrhœa, shooting pains in the head, low mutterings and convulsions.

Hyosciamus.—Stupor, loss of consciousness, delirium, sudden starting, singing and muttering, smiling, picking at the bed-clothes, desire to escape, involuntary discharge of urine.

Stramonium.—Face red, staring look in the eyes, sleeping natural, but with twitching and tossing about.

Bryonia.—Constant inclination to sleep, sudden starting from sleep and delirium, starts, sighs and screams, burning and shooting pains in the head and cold sweat on the forehead.

Bryonia may be given when belladonna and aconite seem to be indicated, but do not afford relief.

Opium.—Drowsiness with heavy breathing, eyes half open, confusion and giddiness after waking, chilliness or indifference to everything. If at any time during the disease, the patient is very restless and sleepless, coffea and belladonna may be given in alternation, a dose every hour. While these remedies are being given, the others should be discontinued.

Other remedies are zincum, aper melifica, rhus tox, lachesis and sulphur.

Administration of remedies.

Dissolve twelve (12) globules of the selected remedy, in twelve (12) teaspoonfuls of cold water, and give a teaspoonful every one, two or three hours, according to the urgency of the symptoms.

APOPLEXY.

This word is derived from two Greek words meaning to strike or knock down. This affliction is characterized by sudden loss, more or less complete of consciousness and voluntary motion, without the circulation or breathing being suspended. It is produced by pressure upon the brain.

Causes.

The immediate cause of an apoplexy is anything that increases the circulation of the blood towards the brain, or prevents the return of the blood from the head; as intense study; violent passions; viewing objects for a long time obliquely; wearing anything too tight around the neck; a rich and luxurious diet; suppression of urine; suffering the body to cool suddenly after being greatly heated; continuing long in a warm or cold bath; the excessive use of spices, or high-seasoned food; excess of venery; the sudden striking in of any eruption; suffering issues, setons, etc., suddenly to dry up, or the stoppage of any customary evacuation; a mercurial salivation pushed too far, or suddenly checked by cold; wounds or bruises on the head; long exposure to excessive cold; poisonous exhalations, etc.

This disease may be mistaken for a fainting fit, though the distinction is sufficiently well marked. When a person faints, the face and lips lose their color, and the skin becomes cold. In apoplexy, on the contrary, the face is generally red and the skin hot. In fainting, the pulse and respiration are almost suspended. This is not the case in apoplexy,

A fainting fit is but of short duration, and the individual on recovering does not experience pain.

Epilepsy, or the falling sickness, resembles apoplexy, in

so far as the individual in both cases falls down in a fit ; but in the former disease there are convulsions, the limbs are not paralyzed but rigid, and the eyes are convulsed and look upwards ; these symptoms distinguish it sufficiently from apoplexy.

Complete intoxication is distinguished from apoplexy by the smell of the liquor which the individual has drunk, and by the weakness of the pulse.

Treatment.

For the proper treatment of apoplexy it is proper to raise the head, to apply cold water or ice to the forehead, and to place the feet and hands in hot baths. If the stomach be overloaded, an emetic of a tablespoonful of mustard in half a pint or less of warm water, or twenty (20) grains of ipecac in warm water, should be given—one fourth ($\frac{1}{4}$) of a pint may be given at once, and often with the discharge from the stomach, the symptoms pass away. This is especially useful when the attack follows a hearty meal. It is of great importance to unload the bowels as soon as possible. If the patient cannot swallow, three (3) drops of croton, rubbed on the back of the tongue, will give prompt action. Aid this by injection of warm water.

Many cases of threatening aspect are relieved by saline diuretics ; a copious flow of urine has followed the removal of symptoms, which had existed in spite of free purgation and other treatment. Give carbonate of soda or potash, as there is always considerable acidity of the stomach ; and the discharge of flatus by the mouth, which results from such administration, is often followed by a complete remission of the symptoms. Mustard plasters applied to the calves of the legs have been found generally useful.

Great care must be given to the diet of the patient. His bowels should be kept regularly open. If any tendency to constipation exists, he should take occasionally a small dose of sulphate of magnesia, or a seidlitz powder.

All the causes of the disease should be carefully avoided.

The diet should consist chiefly of vegetable or farinaceous substances. Ripe fruit, and fish, may be taken in moderate quantity ; tea and coffee, if used at all, should be taken weak and in small quantities ; and black tea should be preferred. The object should be to avoid plethora on the one hand, and anæmia, which provokes excessive action of the heart, on the other. The patient should take moderate exercise, particularly passive exercise ; but should avoid all muscular exertion ; should never strain under any circumstances, even at stool, should never walk fast, or run, or mount a flight of stairs hastily. He should always sleep with the head elevated, and, though taking care to keep sufficiently warm at night, should avoid the other extreme of excessive heat. A mattress should be preferred to a feather bed. Hot, and cold baths should be used with caution. Nor is less caution necessary in watching over his mental condition. It should be the care of the patient's life to maintain an equable frame of mind, and never to allow himself to be excited into passion, or strong emotion, by any of the varying interests or conflicts of this world. In short, it should be the aim of the patient, and his medical adviser, to maintain in all things a wholesome moderation.

Homœopathic treatment.

The first step in the treatment of an attack is to loosen everything at all tight around the patient, especially collars, bands, or neckerchiefs. Remove the patient to a cool place raise the head and shoulders. Rub the extremities forcibly to increase circulation. When the bowels are loaded, give an injection of warm water and gruel.

Aconite.—There are few cases in which this remedy is not more or less useful at the outset. Marked signs of febrile excitement, heat of the skin, flushed face. A dose, dry, on the tongue, every half hour or two hours until the symptoms abate.

Opium.—If the attack occurs in old people, attended with buzzing in the ears, redness of the face, constipation,

breathing labored and snoring, arteries of the temple throbbing. A dose, dry, on the tongue every fifteen minutes, until the alarming symptoms subside, then every two hours until general improvement.

Nux vomica.—For persons of sedentary habits, or those in the habit of using liquor, particularly if there is headache in the right side with dizziness, may be given in alternation with opium.

Belladonna.—Face swollen, bluish or dark red, distension of the veins of the head and neck, pupils of the eyes dilated, and the eye bloodshot, grinding of the teeth, suppression or involuntary discharge of the urine. When the patient recovers somewhat, this remedy may be given for dizziness, throbbing pains in the head, heaviness and pressure in the head, cramp-like pains in the face and limbs, roaring in the ears, constipation, aggravating of pains by movement or contact. Dose, every quarter of an hour, then every three hours.

Hyosciamus.—The patient falls suddenly, with a violent shriek, convulsive movements, and labored breathing, the attack preceded by languor, and momentary loss of consciousness, disposition to sleep often, and too long, starting up from sleep in affright, body covered with profuse perspiration, frequent attacks of dizziness, face livid, mind sad and peevish, eyes red, sparkling and staring and protruding from their sockets. A dose, dry, on the tongue, every half hour until symptoms are alleviated, then every two hours.

SUNSTROKE (*Insolation*).

Death from sunstroke is not produced by the effect of the direct rays of the sun, as many suppose, but from a peculiar condition of the nerves brought on by the loss of rest and excitement of the nervous centres. The man who sleeps comfortably each night can endure unharmed a great deal of sun's rays. To avoid sunstroke, therefore, special attention should be paid to the sleeping apartments, to insure their being as cool and well ventilated as possible. Beverages of

an overstimulating character should be avoided, as well as those calculated to make a person wakeful. While moderate indulgence in all kinds of healthful food is in order, excesses of all kinds in heated terms, should be sedulously avoided.

Any cool-headed man or woman can relieve the sufferer at once and without fear of any evil consequences. The method is simple and usually carried out. The following is all there is to do : Draw the body into the nearest shade ; place it in a sitting position against a wall, a tree, or anything that will be a support for the back ; loosen the collar of the skirt or dress ; throw ice-cold water over the head copiously ; give a pretty stiff dose of essence of Jamaica ginger—say an ounce or more—in a half glass of water. Keep up the application of water after the ginger has been given, but moderately, and it need not be ice-cold. Let the patient have plenty of air around him, and in an hour's time he will get up and walk home or to a street car. This is all the treatment necessary and it is based on common sense. The oppression on the brain caused by the heat is relieved by the cold water, and the blood is sent from the head to the body. Essence of ginger is the strongest stimulant and quickest prevents anæmia, or lack of blood, by stimulating the vessels and sending fresh blood to the brain.

CATALEPSY.

Catalepsy is a disease of the nervous system, of an intermittent nature, and recurring in fits at irregular intervals. It is characterized by the sudden and complete suspension of consciousness and voluntary motion ; the body and limbs retaining, throughout the fit, the position in which they were at the moment of the attack ; or any other position which may be given to them during its course. Females are most subject to this rare and singular disease. Many theories have been proposed to account for its extraordinary symptoms, but none of them are satisfactory, and its nature remains still unknown.

Various methods of treatment have been adopted but without producing any lasting effect. Obstruction of the catamenia (monthly flow) was at one time supposed to keep up the disease, but the disease has been found when a patient is perfectly regular in that respect. Hypochondriacal and hysterical women, and those with irritable nervous systems, appear to be most predisposed to this disease. Habitual melancholy, religious enthusiasm, love, great anxiety, extreme sorrow and other passions which act strong on the nervous system, are supposed to be predisposing causes. The immediate exciting causes are anger, terror, sudden fright or any strong mental emotion.

In some instances it would appear that catalepsy depended, at least to a certain extent, upon irritation of the brain or spinal marrow, a deranged state of the stomach and bowels, obstruction of the menstrual discharge and other irritating causes; but individuals have been affected with it in whom no other disease would be detected, though in the majority of cases it seems to have been intimately connected with hysteria. It is not a dangerous disease, but there is reason to believe that in some instances individuals have been buried while in a cataleptic state.

Treatment.

When catalepsy appears to be kept up by any exciting cause the treatment of course ought to consist in removing that cause if possible.

If from obstruction of the menses, then the warm hip-bath should be frequently employed and the carbonate (rust) of iron, with aloes, administered. If the stomach and bowels or other organs are affected, the necessary means ought to be resorted to for the purpose of restoring them to a healthy state. Persons with pale countenance, soft flesh and weak constitutions; aged people, and those with spongy gums and those with scorbutic spots on the body, who have labored long under this disease, should have recourse to quinine or other tonics, and generous diet. Nothing is of more import-

ance in the treatment of catalepsy than a proper regulation of the mind.

Homœopathic treatment.

This must be regulated by the prominent symptoms of the nervous and mental condition, and of the general health. Some apparently slight thing may in this, as in other affections, give the key note and point to the remedy.

Acid hydrocyanic.—Great muscular debility, especially in the left side, ending in an attack, the patient is motionless and speechless without a sign of life; the attack terminates in profuse perspiration; consciousness unaffected throughout; a dose, dry, on the tongue, every three hours.

Cannabis sativa.—Confined to the arms and trunk of the body, muscular powers entirely lost. Conscienceness remains undisturbed. Everything appears to the patient transformed and beautiful, and the commonest face is changed into the look of an angel; a dose every three hours.

Gelseminum.—Complete loss of muscular power, inability to move a limb or even move the eyelids, though the patient can hear, and is perfectly cognizant of what is transpiring. Dose, every three hours.

Nux vomica produces the same symptoms as gelseminum, total loss for a time of ability to move out of the chair for instance, in which patient was sitting, or to raise an arm or leg.

Accessory treatment.

Cold, dripping sheet on rising, a tepid sitz or shower bath at eleven. Medical rubbing to Galvanism when hydropathics are not thought advisable, change of scene and some interesting occupation.

APHASIA.

One of the most curious and baffling of nervous diseases is aphasia, which consists in the loss of power in the subject of it to recall certain words, and which in serious cases de-

stroys all power of expression. While in the simple forms of the disease only a few words are lost by the sufferer, in more complicated cases, his vocabulary is limited to perhaps not more than half a dozen words. In one instance the total vocabulary of an aphasic patient consisted of five words — “yes,” “no,” “three,” “always” and “hello.” He answered all inquiries with one of these, and though when questioned concerning a number he would invariably say “three; he would give the accurate number by exhibiting his fingers.

An eminent French judge who suffered from it would say to his wife, “Give me my—dear me! my—you know,” and he would point to his head.

“Your hat?”

“O, yes, my hat.”

Sometimes, again, he would ring the bell before going out, and say to his servant, “Give me my um—um—umbrel.”

“Your umbrella?”

“Yes, my umbrella.”

At this time he exhibited no other symptom of diminished intelligence, but was in the habit of discussing the most intricate points of law. Another invalid would substitute the word he desired to use with a periphrase, as for instance, when he wanted to mention his aunt, he would say, “My nearest relative by the mother’s side.”

The greatest sufferers are as unable to express themselves by writing as by speech. They take up the pen eagerly in their hands, and either scrawl a few unintelligible hieroglyphics, or write some word wholly different from the one they intend.

Amnesia refers to the type of the disease where there is lack of *agraphia* refers to the lack of power of writing.

No positive cure for this strange aberration is known though the patients sometimes recover, and the most curious feature of it is, no general wakening of the intellect accompanies it.

APHONIA (Suppression of the voice).

Allusion is here made only to the affection of the voice of a nervous character, independently of inflammation.

Changes of the voice of this kind are not uncommon. Sometimes it becomes acute or of a higher key though feeble. The voice of a man is thus rendered feminine or puerile. Sometimes the alteration is of an opposite character, the voice becoming low or hoarse, or awaking, so that a child or woman will speak like a man.

In many instances it is entirely suppressed. No sound is formed above that of the breath, and speech is in whispers. The attack may be sudden or gradual, and brief or of long and indefinite duration.

Causes.

These are numerous. Among the most frequent is the irregular distribution of nervous action consequent upon general debility, as after long-continued or exhausting diseases. The affection is often nothing but a form of hysteria. Sometimes it depends upon debility of the laryngeal muscles alone ; as where these have been overstrained by protracted and excessive efforts in speaking or singing. Occasionally an attack is brought on by a sudden and strong mental emotion, as of joy, anger or fright. Quick changes from a warm to a very cold air have induced it. In some instances, it appears to depend on sympathy with intestinal irritation.

Treatment.

When the disease depends on general debility, the obvious plan of cure is to restore strength by tonics, the cold bath, nourishing food and exercise. When a mere form of hysteria, it is to be treated like spasm of the glottis from the same cause. If the brain is in fault, our remedies must be addressed to that organ, and must vary with the nature of the affection. Aphonia arising from temporary causes often disappears spontaneously. When produced by cold, it is

cured by hot teas, or warm stimulating drinks, given so as to induce perspiration. Such measures are also obviously proper in all cases where the modification of the voice depends on debility of the laryngeal muscles. Under such circumstances, we may employ gargles of alum and other astringents, whether vegetable or mineral, stimulating inhalations, electricity, external irritation by means of synapisms, blisters, croton oil or a seton.

EPILEPSY (*Fits, falling sickness*).

In the majority of cases, fits of epilepsy come on without previous indication of their approach; but sometimes the following premonitory symptoms are experienced. Headache, giddiness, ringing in the ears, flushed face, low spirits, irritability of temper, the fancied appearance of certain objects before the eyes, and in some cases dilatation of the pupils. These sensations continue perhaps a day or two before the fit comes on, are of short duration, and of a different description. A feeling of pain, heat, cold, or tingling, comes on suddenly, in one of the toes or fingers, or in a particular part of the back or belly, then rises gradually through the stomach and heart, until it reaches the head, when the patient immediately falls to the ground. But, in ordinary cases, at the moment when the patient least expects it, he utters a loud unnatural scream, and falls down bereft of sense and voluntary motion, and violent convulsions instantly follow. In some cases, the convulsive movements precede the fall; particular motions or gesticulations of the limbs take place, or the head is drawn backwards or turned gradually round towards one of the shoulders, by a spasmodic action of the muscles of the neck, which appears very distressing. The muscles of the trunk and extremities are violently agitated; the limbs are alternately extended and flexed, the toes are curved inwards, and the thumbs are firmly grasped in the palms of the hands. The convulsive action of the muscles of respiration causes the breathing to be at first slow and difficult, but after some time it becomes quick, irregular and occasionally

stertorous. The muscles of the belly and bladder are acted on in a similar manner, so that in some patients the fæces and urine are expelled involuntarily. The face is swollen and red, or of a purple color; the veins of the temple and neck are enlarged; the face is drawn to the right or to the left, or the head may be drawn backwards or downwards on the chest. Sometimes the eyelids are closed, at other times wide open; the eyes are fixed and staring, or they roll in their orbits, the pupils remaining dilated or contracted, but always immovable. The face is violently distorted, the patient gnashes his teeth, and thrusts out his tongue, which is often severely injured; foam flows from the mouth, and is not unfrequently bloody, from the wounds inflicted on the tongue,

When the fits recur frequently, and the complaint has been of long continuance, memory fails, the intellect becomes impaired, the countenance assumes a vacant appearance peculiar to epileptic patients, and at last a state of idiocy is induced; but when the attacks appear at long intervals, without being immoderately severe, their influence on the general health and intellect are scarcely at all perceptible.

Treatment.

Dr. Reuben A. Vance, makes the following points:

1. It is a matter of common observation that cases of epilepsy are affected very differently by the same method of treatment; that the same drug administered in the same quantities to cases that apparently resemble each other in every particular, will at times act in a diametrically opposite manner. The bromide of potassium, for instance, will at once relieve certain cases, while in certain others it invariably increases the number and severity of the paroxysms.

2. As a general rule it can be said that the cases of epilepsy benefitted by the bromide will be those characterized by the diurnal occurrence of the fits, while those injured by it will be the cases in which the paroxysms, are either exclusively nocturnal, or occur principally by night.

3. It is also a matter of experience that those cases in

which the fits are controlled by the bromide present something like the following history : For a variable period after commencing with this drug the paroxysms cease, but sooner or later, in the vast majority of cases, they return in an altered form, and recur with increased frequency. However much the dose of the bromide is now increased, it will fail to control the paroxysm, and it will be necessary to stop its administration for several weeks. As soon as the system recovers its natural tone, the bromide can be recommenced, and another interval of freedom will ensue, to be followed in turn, by a similar series of convulsions.

Opium or morphia, hyosciamus, belladonna, stramonium, cannabis indica, chloroform, nitrate of silver and many other medicines have been employed with good effect in some cases but without any perceivable effect in others. The bromides have received a great deal of attention. It has long been claimed that a combination of bromides make more headway against epilepsy than bromide of potassium alone. The experience of Brown Sequard was to this effect, and his formula .—

Iodide of potassium,	. . .	1 drachm.
Bromide of potassium,	. . .	1 ounce.
Bromide of ammonia,	. . .	2½ drachms.
Bicarbonate of potash,	. . .	2 scruples.
Infusion of columbo,	. . .	6 ounces.

Mix. One drachm before each meal, and three drachms at bed-time,—is in constant use at the present day.

Dr. Hammond's experience has proved the following to be one of the best plans of treatment for epilepsy :

Dissolve eight (8) ounces of bromide of sodium in a quart of water. Of this take a teaspoonful three times a day. After three months add one teaspoonful more to the night dose, and after another three or four months add a teaspoonful to the afternoon dose also. At the expiration of a year do the same with the morning dose, and continue with

this for a year or more thereafter. If no symptoms of the disease have meanwhile appeared then gradually reduce the doses, and at the expiration of the third year stop. The attacks do not usually return after this course of treatment. Ordinarily, however, patients stop the medicine after a month or two, and in such cases the attacks almost invariably return. It is then almost impossible to bring these patients under the influence of the bromides again. The doses will have to be at least doubled, and this may so derange the system as to make it impossible to take the medicine longer.

In epilepsy the regular use of bromide of ethyl, administered in daily inhalations during a period of one or two months, diminishes very notably the frequency of the attacks.

Homœopathic treatment.

The patient should be placed in a position that he cannot hurt himself; the clothing should be loosened on all parts of the body, and a cork or some soft substance placed between the teeth to prevent the tongue and lips from being wounded. He should not be restrained during the paroxysm, any more than sufficient to prevent him doing himself injury.

The first remedy that should be given is belladonna.

If the face is dark and swollen, breathing hard and snoring, give opium, stramonium, ignacia, hyosciamus. Coffea may also be administered during an attack, especially when the attack is caused by fright, mortification or other mental emotions.

When it occurs in children during teeth-cutting, chamomilla, coffea and hyosciamus are the remedies.

When the eyes are bloodshot, foaming at the mouth, distortion of the limbs and face, cicuta and stramonium, are the best remedies.

When the attack is caused by great excitement, worms, or exposure to great heat, and attended with screams, violent convulsive movement of the limbs, gnashing of teeth, frothing at the mouth, give hyosciamus, ignatia, cocculus.

When the attack is caused by the abuse of stimulants, venereal excitement, disordered stomach, give *nux vomica*.

When it occurs in drunkards, give opium, *nux vomica*.

When the attack is caused by the driving in of an eruption, give *ipecac*, *belladonna* or *cuprum*.

Administration of remedies.

Of the remedy selected, give a dose (six (6) globules) once or twice a day.

Accessory treatment.

Hydropathic treatment is of great service in epilepsy.

Diet habitually light and nutritious. Persons suffering from epilepsy, have a craving for indulgences, and are very apt to take more food than does them good. Suppers beyond a cup of cocoa or chocolate and a slice of bread and butter or toast are out of question. Great attention must also be given to exercise and clothing. Any one subject to these fits should not be left alone night or day. All excitement and study must be avoided. Patients should have something in which to take an interest, should be treated with great kindness, and allowed as little as possible to brood on or feel their position. The hydropathic treatment advised is a cold dripping sheet on rising; a tepid sitz or cold shower bath at eleven. Medical rubbing and galvanism to follow, or where hydropathic measures are not thought desirable. Change of scene and some interesting occupation.

ST. VITUS'S DANCE (*Chorea*).

There is no better description of St. Vitus's dance than that given by Sydenham a hundred and fifty years ago. This disease, he says is "a species of convulsion, which for the most part attacks boys or girls, from the tenth year to puberty. First it shows itself by a lameness or rather instability of one of the legs, which the patient drags after him. Afterwards it appears in the hand of the same

side, which he that is affected with the disease can by no means keep in the same posture for one moment ; if it be brought to the breast or any other part, it will be distorted to another position or place by a convulsion, let the patient do what he can. If a cup of drink be put into his hand he represents a thousand gestures, like jugglers, before he brings it to his mouth ; for whereas he cannot carry it to his mouth in a right line, his hand being drawn hither and thither by the convulsion, he turns it often about for some time, till at length, happily reaching his lips, flings it suddenly into his mouth, and drinks it greedily, as if designing to make sport."

In many cases the involuntary motions are confined to one side of the body ; sometimes the face, or only one of the limbs is affected ; the muscles of the wind-pipe and tongue are occasionally attacked, and then the patient cannot articulate properly. In some instances deglutition is performed with difficulty. It is very liable to relapse, and has been known to recur several times in the same person. It is not dangerous, and in young persons generally terminates favorably. It may continue only a few weeks or as many months ; in some cases it has been known to continue through life without having materially injured the general health.

Treatment.

In large proportion of cases, rest and food is all that is required for recovery. But medicinal treatment often renders important service. The remedies required would be different according to the cause, but in all cases the attempt should be made to improve the nutrition of the body generally and of the nervous system, by good food, rest and warmth.

The food may be supplemented by cod liver oil. Baths, warm and cold, especially shower-baths, spinal douches, spinal ice-bags, gymnastics,—musical gymnastics, i. e. movements timed by music, have advocates and may be useful in suitable cases. In the terrible cases of acute chorea the indication is to procure rest and for the poor sufferer to keep up the strength.

Milk, eggs, beef-tea and other forms of concentrated fluid nourishment, should be given freely. Restraint of the violent movements is often a great comfort to the patients; the limbs should be carefully bandaged with flannel and bound, the legs together, the arms to the sides, a folded blanket across the abdomen and hips keeping down the body. If half done it only adds to the suffering, but when properly carried out it gives a feeling of relief and favors sleep.

Homœopathic treatment.

Cuprum.—When one side principally is affected.

Stramonium.—Constant movement of the hands and arms; attacks caused by fright or scare. A garic when the symptoms entirely disappear during sleep.

Nux vomica.—There is a halting or uncertain motion of one of the legs, the patient drags it when walking.

Caulophyllum.—In young girls, from menstrual irregularity; especially painful menstruation.

A dose every three hours.

If the chorea is caused by intestinal worms, or other substances, causing irritation of the bowels, expel the parasites by suitable medicines and you cure the disease.

When chorea is connected with rheumatism *cimicifuga* and *spigelia*.

Accessory treatment.

The hydropathic measures for chorea are the same as for catalepsy. Except where there is rheumatic tendency, the shower bath is out of the question and the dripping sheets should be slightly tepid.

CRAMPS (*Writer's cramp, etc*).

This affection is said to be closely allied to chorea. It is a sudden and violent contraction of a muscle or a set of muscles, and was more generally experienced in the limbs, although it sometimes attacks the stomach, breast, etc.

Causes.

Sudden exposure to cold or damp night air, drinking cold water when very hot and perspiring, indigestible food, excesses in eating and drinking, overstraining the muscles.

Treatment.

When the attack occurs in the legs, tying a cord or handkerchief tightly around the leg above the affected part, or briskly rubbing and slapping the surface will frequently relieve.

When the cramp occurs in the stomach, apply over the region of the stomach, a mixture of equal parts of laudanum camphor, essence of peppermint, and oil of amber. Red pepper and whiskey may be used when the cramp is in the leg or neck.

As an internal remedy for cramp in the stomach, use the compound tincture of lobelia and capsicum. If the stomach be fomented with cloths, frequently dipped in warm water, it will often produce the most happy effects. Hops, tansy or mustard may be used also. Morphine, given in doses of one-fourth ($\frac{1}{4}$) of a grain, will generally relieve.

The British Medical Journal in an article on the above subject, considers that writer's cramp, although counted among the minor nervous diseases, has probably given rise to quite as much discomfort, and even hardships as some of those considered more important.

The treatment recommended at present is absolute cessation for a prolonged period from all attempts at writing, the use of the constant current, and a well directed exercise of the muscles with a general treatment.

Homœopathic treatment.

Colocynth.—Will generally relieve cramps occurring in the night. If the cramps occur more in the daytime, take rhus.

Veratrum.—May be given every night, where it occurs frequently.

Sulphur, lycopodium and sepia.—May be used to prevent the return of cramps.

Administration of remedies.

Of the remedy selected, give a dose night and morning.

Preventive treatment.

Camphor, by inhalation, is often sufficient to arrest a threatened attack of cramp or general spasm. Hold the phial to the nostrils for a few minutes, closing the lips and breathing only through the nostrils.

HYSTERIA.

This disease has been defined by Dr. Copeland as a "nervous disorder, often assuming the most varied forms, but commonly presenting a paroxysmal character, the attacks usually commencing with a flow of limpid urine, with uneasiness or irregular motions and rumbling noises in the left iliac region, or the sensation of a ball (*globus hystericus*) rising upwards to the throat, frequently attended by a feeling of suffocation, and sometimes with convulsions; chiefly affecting females from the period of puberty to the decline of life, and principally those possessing great susceptibility of the nervous system and of mental emotion.

The disease affects principally females of great nervous sensibility and of mental emotion. Women from the age of sixteen to thirty-five, unmarried women and young widows are most subject to this disease.

The paroxysm may be brought on by an irritation of the nerves, stomach or intestines, by wind, acrid humour or the like. A sudden suppression of the menses often gives rise to hysteric fits. They may likewise be excited by violent passions or affections of the mind, as fear, grief, anger or great disappointment. It appears under such various shapes, imitates so many diseases, and is attended with such a variety of symptoms, that it is difficult to give a just character or definition of it; and is only by taking the aggregate of its

appearance that a proper idea can be conveyed of it to others.

Hysteria differs in appearance from epilepsy by the breathing never being suspended, the tongue is never bitten and the attack is never followed by coma, as epilepsy is. The sensibility in various tissues seems to be much increased in some patients. This increased sensibility is called *hyper-æsthesia*. "The apposite condition an *æsthesian* loss of sensibility is a prominent phenomenon in some instances.

Hysteria depends almost entirely on the education, social position in life, mode of living and moral training of females.

Treatment.

Valerian, castor, assafœtida, galbanum, and other remedies termed antispasmodic, are in very general use in the treatment of hysteria, medicine to have any decided effect in this disorder, must be directed toward improving the state of the digestive and uterine functions.

It is not, however, to be supposed that much benefit can be derived from any description of the medical treatment, as long as the moral and physical causes of the affection are kept up.

The mind should, as much as possible, be kept easy, cheerful and occupied with agreeable pursuits; the body should be sponged daily with tepid or cold salt and water; or the shower-bath or sea-bathing may be had recourse to. The state of the digestive organs should be carefully noticed, and it is of equal importance to maintain a healthy state of the uterine functions. Hippocrates, more than two thousand years ago, remarked, that the best cure for hysteria is to marry and bear children.

Homœopathic treatment.

Belladonna.—When the paroxysm begin with a sensation of choking, the face being bloated and dark red. Dose, every fifteen minutes till the symptoms subside, then at longer intervals.

Ignatia is of great value, in patients of a mild and sensitive disposition or those subject to extreme variation of spirits, and when the attacks are announced by convulsive length.

Pulsatilla, *stramonium*, *nux vomica*, *conium*, *mochus*, *caulophyllum* and *cactus* are all useful according to the indications.

When the attack arises from costiveness, and is attended with a bitter or sour taste in the mouth, fullness and pain in the stomach, nausea, weakness, headache, dizziness, *nux vomica* and sulphur should be given—*nux vomica* at night and sulphur in the morning.

Pulsatilla, *sabina*, *silicea*.—If the attack is caused by the derangement of the generative organs.

Ignatia, *hyosciamus*, *belladonna*, *coffea*.—If the attack has been caused by any violent mental excitement, as anger or fright.

Administration of remedies.

During the paroxysms, of the selected remedy, give a solution of twelve (12) globules in twelve (12) teaspoonfuls of water.

Dose, a teaspoonful every ten or fifteen minutes.

In the intervals of the paroxysms, six (6) globules every twelve hours will be sufficient.

HYPOCHONDRIA—*Vapors—low spirits.*

Hypochondria presents itself under a variety of forms, the symptoms varying much in different individuals. Physicians differ widely with regard to the source and true nature of hypochondria; some suppose it to be an affection of the brain, a species of mania while others maintain that it is a disorder of the nervous system, arising from a deranged state of the digestive organs.

It is not a disorder of young people; old maids and bachelors are generally the subjects of it. Those who are actively employed, are very seldom troubled, the idle, the dissipated, and those who are constitutionally nervous and

timid, among the higher classes of society, are very subject to it. Sedentary habits, particularly when connected with intense study or long continued attention to abstruse subjects, tend strongly to bring on this disease ; hence it has been a common disorder of literary men in all ages.

A hypochondriacal patient often says that he is tired of life, and yet his conduct shows how very desirous he is of living, and how much he dreads death.

Treatment.

Cheerfulness and serenity of mind are by all means to be cultivated. Exercise of every kind is useful. The cold bath is likewise beneficial ; and where it does not agree with the patient, frictions with the flesh-brush or a coarse cloth may be tried. If the patient has it in his power, he ought to travel either by sea or land. A voyage or a long journey, especially toward a warmer climate, will be of more service than any medicine.

The general intentions of cure in this disease, are to strengthen the alimentary canal and to promote the secretions. These intentions will be best answered by different preparations of iron and the Peruvian bark, which, after proper evacuations, may be taken as follows :

Sulphate of quinine,	. . . . .	20 grains.
Sulphate of iron,	. . . . .	20 "
Extract of hyosciamus,	. . . . .	30 "

Make a mass, divide into twelve (12) pills and take one (1) twice a day.

Those who are willing to take exercise, but whose occupations confine them to the house, and perhaps to an unfavorable posture, really deserve our pity.

If there is costiveness, cracked wheat should be eaten, or if this does not answer, give the following :

Pulv. rhubarb,	2 scruples.
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Bi-carbonate of potassa,	1 scruple.
Extract of nux vomica,	5 grains.

Mix. Make into twenty (20) pills. Dose, one (1) pill twice a day.

A teaspoonful of calcined magnesia, or an infusion of thoroughwort, will often answer an excellent purpose.

If there is debility, one of the following may be given :

Fluid extract of senna,	1 drachm.
Compound fluid extract of gentian,	$\frac{1}{2}$ “
Fluid extract of ginger,	$\frac{1}{2}$ “
Aromatic spirits of ammonia,	$\frac{1}{2}$ “

Mix, and take one (1) dose in a wineglassful of sweetened water.

During the interval between the attacks, endeavour must be made to remove the exciting cause, whatever it may be, such as irregular menstruation, costiveness, or deranged digestion. The bowels should be kept free, without resorting to violent means. If there is great weakness, one of the following may be given

Valerianate of zinc,	8 grains.
Tincture of valerian,	2 drachms.
Orange flower water,	$3\frac{1}{2}$ ounces.
Syrup of red poppies,	2 drachms.
Mix. Dose, a teaspoonful every six hours.	

Homœopathic treatment.

Nux vomica.—Ill-humor, aversion to life, unrefreshing sleep, dullness in the head, with aching pains or sensations as of sticking a pin in in the brain, constant desire to lie down, great exhaustion after walking; constipation of the bowels, disposition to, or presence of piles.

Sulphur.—Lowness of spirits, anxiety about one's affairs, health and salvation, restlessness, anxious impatience, bodily

and mental indolence, absence of mind, fullness and oppression of the stomach, constipation.

Calcarea Carb.—Lowness of spirits, with disposition to weep frequently, anxiety, with palpitation of the heart, apprehension of illness or misfortune, insanity or disease, dread of death, inability to think or perform mental labor. This follows well after sulphur.

Aurum muriaticum.—Unrefreshing sleep, frightful dreams, dread of some impending calamity, loss of ambition and energy, constant disposition to dwell on imaginary diseases.

Natrum muriaticum.—Lowness of spirits, weeping and gloomy forebodings about the future, aversion to life, ill-humor, inability to perform mental labor, headache with want of appetite, indigestion after eating.

Administration of remedies.

Of the selected remedy, give six (6) globules every other evening for two weeks. If there is no improvement then, select another remedy.

LOCK JAW (*Tetanus*).

Tetanus is characterized by violent and painful contractions of the voluntary muscles of the whole, or some part of the body, accompanied with tension and permanent rigidity of the muscles affected; the mental faculties and power of sensation remaining unimpaired.

In general the earliest symptom is a feeling of stiffness about the neck, and at the back of the head, which in most cases is first observed on awaking in the morning, or after sleeping during the day; this increases and extends to the jaws, while the throat becomes dry and slightly sore.

A train of symptoms soon follow. The muscles of the neck and jaws become rigid, painful, and are occasionally seized with spasm; the patient then finds considerable difficulty in opening his mouth; the power of swallowing is impaired; and before long a sudden spasm brings the teeth firmly in contact, so that the mouth cannot be opened by the

most powerful efforts. If the spasms and rigidity do not extend to other muscles the disease is called *trismus*, or locked jaw, which, though a less painful form than that in which the muscles of the body and limbs are affected, can scarcely be considered as less dangerous. Next, is great difficulty of breathing, occurring in paroxysms, and accompanied with violent pain about the midriff or diaphragm. The muscles of the belly are drawn in towards the spine, and in some cases become as hard as a board. When the disease is at its height the muscles of the limbs are stiff, and the body is bent in the form of an arch, its whole weight bearing upon the crown of the head and the hips, or sometimes on the heels; in other instances the body is bent so as to rest on the forehead and toes.

In patients with chronic tetanus, the trunk and limbs are perfectly rigid. In such cases the individual is completely helpless and lie on his back.

Causes

The usual exciting causes of tetanus are wounds or other external injuries, exposure to cold damp air, and perhaps, certain disordered conditions of the alimentary canal; but the proximate cause, or intimate nature of the disease, is involved in the greatest obscurity.

It must be admitted that nothing satisfactory has yet been discovered with regard to the nature or proximate causes of the complaint. Hence the principles of treatment are necessarily deficient.

Dr. Layton recommends :

Sulphate of eserine,	. . . .	$\frac{1}{2}$ grain.
Pure glycerine,	. . . .	2 fluid drachms.
Syrup of orange flowers,	. . . .	14 " "
Water,	. . . .	2 ounces.

A teaspoonful every hour.

Glycerine was added to prevent decomposition of eserine.

Dr. J. W. Salter reports a case of traumatic tetanus in a man, fifty-one years of age, successfully treated with large doses of chloral and bromide, sometimes every half hour, but usually every two hours—occasionally at long intervals. The total amount given in the twenty days' treatment was sixty (60) drachms of chloral and eighty (80) drachms of bromide, or three (3) and four (4) drachms per diem respectively.

Dr. G. H. W. Ross reports the case of a sailor, suffering from traumatic tetanus. Soothing applications were made to the wound, which was red and angry. A cathartic was administered. The tincture of calabar bean was given in twenty (20) drops every three hours, for fifteen hours, without any effect in diminishing their frequency or severity. Nitrite of amyl was then tried in eight (8) drop doses by inhalation at the commencement of the paroxysms. These were almost instantly aborted and rapidly diminished in severity until they ceased entirely.

A grain of opium may be given every three or four hours. Chloroform or ether, taken into the stomach or inhaled are valuable remedies. Costiveness may be removed by one (1) or two (2) drops of croton oil, administered in a teaspoonful of gruel. Immerse the patient in a hot bath, give an injection of an ounce of castor oil or the same quantity of turpentine, and on removing from the bath, a dose of about one (1) drachm of laudanum should be given. Extract of indian hemp proves beneficial in some cases, a dose of three (3) grains every two or three hours.

Homœopathic treatment.

If the locked jaw is caused by a wound, the wound should be enlarged, and poulticed with bread and milk or flaxseed.

Arnica.—In the beginning, externally as a wash, and internally a dose of four (4) globules or one (1) drop every two hours.

Belladonna or *lachesis*.—If the spasms increase, give these in alternation, in the same dose and time as *arnica*.

Hyosciamus and *opium*.—If no improvement takes place after twelve hours.

Nux vomica.—Especially when the spasms are frequent and short, and the patient perfectly conscious, cramp-like pains in the region of the stomach.

Stramonium.—If there is contraction of the thumbs and fingers, wild and fixed look, painful and difficult breathing and swallowing. Give in alternation with *hyosciamus* or *cicuta*.

NEURALGIA.

This is a painful disease of the nerves, particularly the sensory nerves. The pains are sudden in their commencement, following the course of the nerves. They are of a darting, stabbing, boring, burning character, and are at first unattended with any local change that can be recognized. They are always intermittent, sometimes regularly and irregularly so. The periods of intermission are distinguished by complete freedom from acute suffering, and in recent cases the patient appears quite well at these times.

The word neuralgia has a general recognized force, and there is no equivalent to it which represents the whole group of disorders to which it applies; there are numerous phrases for particular forms of the disorder.

Tic Douloureux is the name applied when it affects the facial nerves. *Angina pectoris* (already noticed under the head of breast pang), when it affects the heart. As it is distinctly a disease of the nerves, whatever tends to keep the nerves in a healthy condition would serve to keep us free from this troublesome complaint.

Symptoms.

The pain comes on in paroxysms, is of a peculiar kind and differs from that which accompanies inflammation. The patient describes it as being lancinating, stabbing, sudden and excruciating. In severe cases the pain is increased by the slightest touch, or even by blowing upon the part, or by

the least bodily exertion, and, when constant, delirium is sometimes the consequence. In some instances convulsive twitchings of the face are observed, and the tears are seen to run down the cheeks. There is perhaps no disease to which the human frame is liable, accompanied with more intense suffering than that which results from the more severe forms of the *douloureux*.

Causes.

Neuralgia may be caused by anything that will produce general depression or even temporary depression ; a sudden shock, as of a fall, or anything that gives a jar to the central nervous system, or by severe mental emotion. Or it may be produced by direct violence to the nerves, by cutting, or by bruising wounds, by a local inflammation—as the eye—or by a decayed tooth or anything that is calculated to injure the nerve. Neuralgia in the face is oftener produced by a decayed tooth than in any other way.

Treatment.

Under the head of nutritive remedies for neuralgia by far the most important sub-class is the series of animal fats. There is theoretical basis for the use of these substances which it is impossible to ignore.

If we take the class which is connected with impaired nutrition—those of advanced life, and particularly the inveterate forms of facial *tic douloureux*—there is the strongest ground, in the result of experience, for insisting upon the value of this kind of remedies.

It is necessary in many cases to make a series of trials before we arrive at the particular form of fatty food which is best suited to the particular patient.

Iron, in any of its preparations, is only of use in cases of actual anæmia (lack of blood) ; in this the carbonate is the best form. The employment of the so-called nerve-tonics is of great use in some cases ; of none at all in others. Quinine, arsenic and zinc are the only medicinal substances of this

class which possess any solid claim to efficacy whatever.

With regard to the efficacy of quinine there are the most conflicting opinions, except in one respect. No one doubts that in the neuralgias which are of malarious origin this medicine, though not infallible, is extremely efficacious.

It should be administered in all cases, which from their regular intermittence leave room for a suspicion, and this may be their nature, in full doses, from five (5) to ten (10) grains, repeated two or three times during the intermission—just as you would do in regular chills and fever.

Prof. Roberts Bartholow recommends equal parts of chloroform, camphor and hydrate of chloral, as an efficient local application to allay the pain of neuralgia. This simple mixture, he recently stated to his class, is very rapid in its anodyne action on the part to which it is applied.

Quinine,	.	.	.	.	.	.	12 grains.
Hydrocyanate of iron,	.	.	.	.	.	.	18 "
Morphine,	.	.	.	.	.	.	1 "
Extract of gentian, or							
Velerian, a sufficient quantity to make a pillular mass.							

Make twelve (12) pills. Take one (1) pill every three hours till six (6) are taken, wait six hours and take the balance.

The pain is often greatly relieved for a time, by the application of a belladonna plaster over the part affected; and the same effect is frequently produced by rubbing in the ointment of veratria, which is prepared by mixing from ten (10) to forty (40) grains of veratria with an ounce of lard.

The following prescription is recommended :

Phosphorus,	.	.	.	.	.	.	1 grain.
Alcohol,	.	.	.	.	.	.	6 drachms.
Glycerine,	.	.	.	.	.	.	1½ ounces.
Rectified sp'ts of wine,	.	.	.	.	.	.	2 drachms.
Sp'ts of peppermint,	.	.	.	.	.	.	½ drachm.

Dissolve the phosphorus in the alcohol by the aid of heat; warm together the glycerine and wine, mix while hot and add the peppermint on cooling.

Homœopathic treatment.

Aconite.—Throbbing, burning, shooting pains, appearing in paroxysms, and preceded by slight aching or crawling pains, worse at night, swelling of the cheek or jaws, thirst, agitation and tossing about, pain confined to one side of the face, violent beating of the arteries of the neck and head, eyes sparkling, buzzing pain through the ears, temples and sides of the neck, fever.

Belladonna.—Paroxysms commencing gradually, with a creeping or itching in the affecting part, cheeks red and swollen, darting, shooting, drawing pains, in the cheek bones, nose and jaw, twitching of the eyelids and muscles of the face, throbbing pains in the forehead, roaring in the ears, heat and redness of the face, great sensibility to cold and light, pain violent, especially on one side, generally the right, pains aggravated by the slightest noise or movement, and also by the warmth of the bed. Where belladonna does not relieve, but seems indicated, give atropine.

Bryonia.—Especially for persons who are subject to rheumatism—face red, burning and hot, swelling on one side, under the eyes and at the root of the nose, pressing, drawing, burning pains, worse upon pressure, pains in the limbs, chilliness, followed by fever.

Chamomilla.—Especially for females who are extremely sensitive—pain tearing and beating, with a sensation of numbness in the affected part, face puffed and swollen, one cheek red, and the other pale, shivering, with internal heat.

Colocynth.—Violent rending, darting pains, extending to the ears, nose, temples, teeth and all parts of the head, principally upon the left side, pain aggravated by the slightest touch.

SCIATICA.

Sciatica is a very painful affection of the great sciatic nerve. This is the largest nerve of the body, it runs from the posterior part of the hip-joint down the back of the thigh to the ham. In severe cases of sciatica, the pain extends along the whole course of the nerve, and is so distressing during the night that the patient is completely prevented from sleeping ; sometimes it is accompanied by quick hard pulse, thirst, foul tongue and the usual symptoms of fever. In chronic cases, the patient occasionally suffers from cramp, and a sensation of tingling and numbness is felt in the limb. In long protracted cases the limb shrinks and the patient has difficulty in keeping it warm. This affection generally arises from exposure to cold and moisture ; and occurs chiefly in adults and people advanced in life. In females it not unfrequently comes on during pregnancy and after labor.

Treatment.

The treatment in the acute form of the disease consists in the application of stimulating lotions, warm fomentations and sometimes blisters. (See treatment under the head of rheumatism.

RHEUMATISM, LUMBAGO AND GOUT.

RHEUMATISM, ACUTE AND CHRONIC.

The most important predisposing cause of rheumatism is inheritance.

The more immediate or exciting cause is cold, especially when it succeeds an opposite state of the atmosphere, or is combined with moisture ; and the system is more particularly susceptible of the injurious influence of cold when the person is fatigued, or in a heated and perspiring state. It does not appear that this alone is sufficient to give rise to the disease.

Hence it may be inferred that cold does not produce rheumatism, unless the system be predisposed to it.

It appears under two forms—the *acute* and the *chronic*.

Acute rheumatism or rheumatic fever.

It frequently comes on suddenly, in consequence of the body having been exposed to cold and wet. Certain general symptoms usually precede the local inflammation. These consist in more or less severe shivering, alternating with flushes of heat, followed by quickness and fullness of the pulse, hot skin, thirst and a sensation of fatigue in the back and extremities. After several hours, sometimes not before the expiration of a day or two, an aching or gnawing pain is felt in one or more of the larger joints, which goes on increasing until it becomes exceedingly severe, often lancinating as in gout, and greatly aggravated by the slightest movement or pressure. The affected joints become swollen, and the skin covering them acquires a rosy tint, which generally appears in patches. The fever gains ground with the increased severity of the local symptoms—the pulse becomes full and bounding, varying from a hundred to a hundred and twenty beats in a minute, the face is flushed, or pale and bedewed with perspiration—the eyes are red—the skin is hot, and occasionally covered with perspiration which emits an acid, pungent smell—the urine is scanty, and deposits a brick-colored sediment—the tongue coated with a white fur, changing to a brown color, as the disease advances; the thirst very urgent; the bowels constipated, and the urine scanty, of a deep red color, transparent and without sediment. In very severe cases, headache, and, occasionally, slight delirium attend during the exacerbations.

Chronic rheumatism.

The symptoms being less severe and of longer duration, are the principal circumstances which distinguish chronic from acute rheumatism. The general character of both forms is the same, the joints are more or less swollen and painful, and

the disease, if not checked by proper treatment, gradually undermines the patient's health, while it disorganizes the joints, wastes the muscles, and renders him a cripple.

In the lumbar muscles—Lumbago.—This occupies the muscles situated in the small of the back, sometimes extending up the spine, sometimes shooting round toward the abdomen. It may be upon one side or upon both. It is often first recognized by a sharp pain, as from the thrust of a knife, upon attempting to rise from the sitting posture. When very severe, it confines the patient to bed, and in one position, from which he cannot move without exquisite suffering. In milder cases the patient can often walk, but always stiffly, and generally partially bent forward upon the hips with the spine perfectly rigid. It is not unfrequently attended with more or less febrile action. The effects of motion and the tenderness on pressure, sufficiently distinguish it from the violent pains of malignant fevers.

In the diaphragm.—Rheumatism sometimes attacks the diaphragm; and there is probably no seat in which it is more painful and distressing. A severe pain shoots from the epigastrium to the spine, sometimes through the body, sometimes circularly along the edge of the ribs, which, in violent cases is increased to agony by every attempt to take a full inspiration. Breathing, which is performed chiefly by the ribs, is often very difficult and oppressed, and sometimes attended with feelings of suffocation. The swallowing of food produces acute pain at the point where the œsophagus penetrates the diaphragm, and sometimes the food is rejected in consequence of the spasm thus excited. In some instances, only a portion of the muscle is affected, and the pain may be confined to one side.

The disease sometimes extends to the heart. The accident occurs most frequently when the disorder has been neglected at the commencement, or when inappropriate remedies have been employed. The symptoms by which we judge that inflammation has invaded this vital organ are, unusually hurried breathing, pain in the region of the heart,

perhaps palpitation, and a feeling of oppression at the chest.

Treatment.

Of all the remedies advocated for disease on the saline and alkaline seem at the present time to have much claim to merit. Before recommending it, it will be necessary to define clearly what we mean by the saline and alkaline treatment.

There are certain saline remedies which, after absorption into the system, are eliminated by the kidneys in the same state as when they enter the stomach. For example :

1. Nitrate of potash, chlorate of potash, and other salts in which the base is conjoined with a mineral acid.

2. Alkaline salts with carbonic acid, in the form of the neutral or bicarbonate of the base.

3. Salts with alkaline bases united with vegetable acid, as citric or tartaric acid. Although these salts are neutral in reaction, when introduced into the stomach they become speedily altered in the blood, the acid is decomposed, and a carbonate of the base appears in the urine ; and hence, although they produce no alkaline effect upon the mucous membrane of the alimentary canal yet upon the blood and the secretions their alkaline effect is well marked.

For this purpose the nitrate of potash seems to stand at the head of the list. Given in gruel, in weak solution, hundred twenty (120) grains to the quart ; as much as an ounce of the nitrate should be taken in twenty-four hours. Dr. Basham says one (1), two (2) or even three (3) ounces of the nitrate, freely diluted, may be taken in the twenty-four hours. He also considers the local application of nitre of great value in relieving pain and swelling of the joints. The nitre treatment, upon the whole, seems to have been followed by good results.

The over acid state of the body and increased amount of fibrin in the blood would naturally suggest in connection with quinine the value of alkaline remedies. Dr. Fuller and Dr. Garrod both have used the alkaline treatment for a long term ; in no case where the alkaline treatment had been

used by them for forty-eight hours did any heart disease or cardiac symptom appear. This seems to be the experience of others. The plan consists in administering a dilute solution of bicarbonate of potash in about thirty (30) grain doses, every four hours, until the joint symptoms and febrile symptoms have completely disappeared. These doses produce no inconvenience either to the stomach or bowels; the urine is notably increased, but its character is completely altered and the reaction become either neutral or alkaline. Upon the heart the alkaline bicarbonate acts as a sedative, reducing the frequency of the pulse sometimes forty-eight beats in the minute, but not causing any faintness. Guaiacum is valuable in the sub-acute forms of rheumatism. It should begin in the tincture.

A modified alkaline treatment is recommended by Dr. Garrod. It consists the administration of quinine from the very first in combination with large doses of alkaline; as much as five (5) grains of the alkaloid and in the form of a carbonate and being given every four hours. Quinine and salicylic acid, are the chief reliance at the present time.

Salicylate of soda,	. . . . .	15 to 20 grains.
Salicylic acid,	. . . . .	20 "
Salicin,	. . . . .	15 "

Are given every one, two, three or four hours, till the temperature falls to the normal, after which the dose of the drug is reduced, so as simply to keep down the fever.

The salicylates are best given in watery solution, variously flavored; salicylic acid in milk or combined with solution of acetate of ammonium and salicin in wafers or in solution. The average duration of acute symptoms under the salicylates is about three or four days. Among the remedies which have proved successful in some cases, is lemon juice in doses of eight (8) ounces or less in twenty-four hours. Bromide of potassium has been found useful in relieving pain and restlessness.

For a considerate length of time after the disease has subsided, a mild nutritious diet and regular exercise should be taken.

Tincture of aconite (P.B.),	. . .	12 minims.
Sulphide of ammonia,	. . .	16 "
Spearmint water,	. . .	6 ounces.

The dose is a fourth part, every fourth, or in severe cases, every third hour, until the pain is relieved and the fever has abated.

Dr. Charles Orton, to a severe case, applied lint soaked in a solution of salicylate of soda, under a cover of oiled silk, to the affected joints. The relief was speedy and great.

A combination of the blister treatment with the salicylic acid, with alkalies, or with the tincture of iron, may often be made with signal advantage.

Anodynes are to be avoided if possible; when necessary, atropine is preferable to morphine, if adequate to relieve the pain, which it usually succeeds in doing.

Guarana, fifteen (15) grains, with hot water, cream and sugar for a dose, and increase to forty (40) grains, once or twice a day. Said to be almost a specific in acute rheumatism.

Dr. A. Luton gives the cyanide of zinc in pill, in doses of from three-fourths ($\frac{3}{4}$) to one and a half ($1\frac{1}{2}$) grains in a single day.

It is best administered in the form of pills, coated with silver. It is not advisable to go beyond two (2) grains per day.

Salicylic acid,	. . . . .	4 drachms.
Glycerine,	. . . . .	2 ounces.
Aqua pura,	. . . . .	2 ounces.

Mix. Dose, one (1) or two (2) teaspoonfuls in a wineglass of water, every four to eight hours.

This with a little care in combining, makes a clear and palatable solution.

In acute rheumatism, I give it **varying** the dose to suit the age, etc., of the patient, every four hours, until pain and swelling are relieved. Then continue three times a day until the patient is convalescent. I, at the same time, see that the secretions are acting properly, and that the alimentary canal is clear. Severe cases are usually relieved of pain in thirty-six to forty-eight hours, and convalescent within a week.

Alkalies neutralize the acids, act as diuretics and eliminate the *materies morbi*. Alone, and in small doses, they are unable to influence the course of the disease ; but when given in very large doses their effects are marvelous ; the pulse falls, the urine is increased in quantity and becomes alkaline, and the inflammation subsides. The symptoms of the disease are moderated, the duration of the attack is shortened, and the cardiac complications are prevented. The dose of the alkalies must not be increased until the acid secretions are neutralized.

Dr. Carpini has reached the following conclusions :

1. Salicylate of soda is indicated in cases of acute polarthritic rheumatism, when the joint symptoms are very well marked.

2. Quinine is the best remedy and the most prompt in its effects, when it is presumed to be of malarial origin, or when it is complicated by malaria.

3. Benzoic acid, or benzoate of soda is suitable for such cases as are complicated by nephritis.

4. Blisters are the surest treatment if the rheumatism is confined to one joint, or if the affected articulations are few in number.

Contra-indications to the use of salicylate of soda : 1. Grave affections of the heart. 2. Persistent gastric disturbances. 3. Renal complications ; not that the salicylate produces nephritis, but it aggravates renal affections. Salicylate of soda should be given only with the greatest precau-

tions to infants, to the aged, or to those enfeebled by long sickness.

Treatment of chronic rheumatism.

In this form of the disease, to moderate the febrile symptoms, from a grain to a grain and a half of tartar emetic, with from a scruple to thirty-five (35) grains of purified nitre, may be taken in barley water in the course of the day; or ten (10) drops of the tincture of colchicum, with an equal quantity of the tincture of henbane, may be taken in a little water, three times a day, not so as to produce purging, but merely to keep up the lowering action of the former remedy. When the symptoms are considerably subdued by these measures, a succession of blisters should be applied upon and in the immediate vicinity of the affected joints. The state of the bowels is to be attended to; mild laxatives, or the occasional use of an injection, may be employed when opening remedies are required. Much benefit is derived in all the forms of chronic rheumatism, from the frequent use of the vapor bath. In protracted cases, when other remedies have failed, the iodide or hydriodate of potash in the dose of three (3) or four (4) grains, three times a day, in a little water, has frequently succeeded in restoring the patient to health. Small and frequently repeated doses of calomel or blue pill, administered so as to produce the general stimulant and alterative action of mercury on the system, have been followed with marked benefit in numerous instances.

Where there is general sluggishness and languor of the system, the cinchona bark or quinine will sometimes prove decidedly beneficial. Certain diaphoretics of the stimulating kind have been much employed in the treatment of this variety of rheumatism; and of these gum guaiacum has held by far the highest rank. In individuals of a relaxed and phlegmatic habit of body, and old persons of a worn out constitution, it may be used occasionally with much advantage; but in persons of a contrary habit—plethoric, athletic and phlogistic—it will seldom do good, and is even apt to do harm by

its heating and irritating qualities. The usual mode of giving it in the form of a tincture, renders it still more objectionable in habits of this kind. In all instances, perhaps, it is best to give it in the form of an aqueous mixture, thus :

Pulverized gum guaiacum,	. . . . .	1 ounce.
Gum arabic,	. . . . .	3 drachms.

Triturate them together in a mortar, and add gradually ten (10) ounces of cinnamon water, a tablespoonful three or four times a day.

In cases partaking of a subacute character, or in such as result from the influence of cold while the system is under the operation of mercury, tart. antimony will occasionally prove beneficial. In instances of this kind, I have used this article dissolved in a decoction of the root of burdock, (*arctium lappa*,) with excellent effects. A grain of the tart. antim. should be dissolved in a pint of the decoction (an ounce of the root to a pint of water) and drank in the course of the day.

In chronic rheumatic pains of the hips (*sciatica*) and muscles of the loins (*lumbago*) the spirits of turpentine is among our most efficacious remedies. Home, states that he cured five out of seven cases of *sciatica* with this article. Within the present year I succeeded completely in removing a violent and protracted case of this affection by the turpentine, given in doses of twenty (20) drops with a scruple of *lac sulphuris* three times daily. I have known the infusion of capsicum employed with marked advantage in a case of inveterate chronic rheumatism ; and the juice of the poke berries (*phytolacca*) is a family remedy in this affection, and has occasionally done considerable good.

Homœopathic treatment.

Aconite.—Should be given in the beginning, when the fever is high ; skin hot and dry ; shooting and tearing pains, worse at night. *Bryonia* may be given in alternation with it

when the pains are worse on motion, or at night, and when there is headache and swelling of the joints.

Arnica.—A bruised and sprained feeling in the joints of the hands and feet, and in the small of the back, with hard, red and shining swellings, and feeling of numbness, and crawling in the affected parts, pains aggravated by motion. May be given in alternation with *rhus*.

Arsenic.—Burning, tearing pains, worse at night, and in the cold air, relieved by external heat.

Belladonna.—May be given when *bryonia* does not relieve, or when the parts are swollen, very red, and shining; the patient is sleepless at night, and complains of dryness in the mouth and throat; congestion of the head. *Belladonna* and *bryonia* may sometimes be given in alternation, with benefit.

Colchicum.—Pains are lancinating, jerking and tearing at night, increased by movement.

Dulcamara.—Rheumatism, when caused by exposure to cold; pains set in at night with a light fever.

Mercury.—Pains worse in the heat of the bed, or towards morning, the patient perspires freely without being relieved by it. *Lachesis* may be given with mercury.

Phosphorus.—Tearing, drawing pains, caused by the slightest chill, headache, dizziness, oppression of the chest.

Pulsatilla.—Pains shifting rapidly from one part to another, feeling of numbness and paralysis, relieved by exposure to cool air.

Rhus tox.—Pains worse during rest, parts swollen and red, tearing or dragging pains in the affected parts, lameness and weakness of the muscles in the vicinity of the diseased portions, increase of the fever and pains at night, perspiration, especially during the pains.

Administration of remedies.

Dissolve twelve (12) globules of the selected remedy, in twelve (12) teaspoonfuls of water, and give a teaspoonful every one, two, or three hours, according to the severity of

the symptoms, lengthening the intervals as the patient is relieved.

GOUT, ACUTE AND CHRONIC.

Regular or acute gout is invariably preceded by certain symptoms, though not observed in every case, always take place in a more or less marked manner. These premonitory symptoms vary greatly, but are, in all classes, connected with a deranged state of the digestive organs; the tongue is foul, or much redder than natural; there is heartburn, sometimes belching of sour fluid, and perhaps vomiting; the patient feels sleepy and uncomfortably after eating, is frequently low-spirited and sleeps badly. The feet are sometimes very cold, at other times distressingly hot; a pricking, darting or numb sensation is felt occasionally in the legs and feet, particularly in the foot which is about to be attacked; and, some hours previous to the paroxysm, there are generally flushes of heat alternating with shivering.

At length, the first paroxysm declares itself, as in asthma, about two or three o'clock in the morning. The patient awakes suddenly, with a violent throbbing pain, generally at the ball of one of the great toes, though sometimes at the heel, instep or ankle. The pain goes on increasing, accompanied with a sensation of burning heat, weight and stiffness of the part, and severe shooting pains in the limb. This local suffering is at first attended with rigors or shivering, which is soon replaced by fever and great restlessness.

Irregular or chronic gout.

Chronic gout is generally the consequence of several attacks of the acute form, or it may appear as a primary affection. In both cases the difference exists between it and acute gout, consists in the pain being less severe, the feverish symptoms milder or entirely absent, and the attacks of much longer duration, continuing in some cases several months, in others all the year round, with the exception of two or three of the summer months.

The pain in chronic gout is constant, but not nearly so severe as in the acute form.

After acute gout the joints soon resume their usual strength and freedom of motion, but in the chronic form they remain stiff, swollen and not unfrequently deformed.

One of the most remarkable and peculiar phenomena of gout, is the facility with which it moves from one part to another. After attacking several of the joints in succession, it may be suddenly transferred to the stomach, bowels, brain, heart, kidneys or in fact to any internal organ or part. This is distinguished by the term *retrocedent gout*.

Causes.

Gout unlike rheumatism requires a peculiar constitutional habit or predisposition, before any exciting cause can develop the disease. This predisposition is frequently hereditary, and perhaps still more frequently acquired by certain habits of living.

The causes which are especially calculated to produce a predisposition to gout in habits free from hereditary diathesis favorable to this disease, are the habitual and superabundant use of rich, nourishing and strongly seasoned articles of food, particularly animal diet; and the free indulgence in vinous or fermented liquors.

Treatment.

Preventive.—The most important part is a proper regulation of the diet. A very spare diet should be rigidly adhered to by full-blooded persons, who have a strong hereditary disposition to the disease; but in general this is not necessary. The maxim should be, to regulate the quantity and quality of food so as not to injure the health, always keeping in recollection that people in general and gouty people particularly, eat more than is good for them.

Curative.—Recourse should also be had to colchicum or meadow saffron, a medicine possessed of great power in subduing the attacks of this disease. The tincture of the seeds

of colchicum is to be given in doses of twenty (20) drops in a little water, three times a day ; but even in these small doses it sometimes purges severely.

The dose of wine of colchicum may be from ten (10) to twenty (20), or even twenty-five (25) minims (drops), repeated every six hours. Colchicum in the above manner will of itself be sufficient, in most cases, to cut short the gouty attack.

The alkaline plan of treatment is likely to prove advantageous, both for the purpose of increasing the alkaline state of the fluids, and also to keep in solution the salt of uric acid, which is liable to be deposited in the cartilaginous and ligamentous tissues.

If the patient is at all costive his bowels must be opened with the citralized magnesia and occasionally saline-cathartics—not actively, however, but occasionally.

The pain is extreme or the patient is very intolerant of it, anodynes must be used. For this purpose the belladonna ointment may be used or smeared over the affected part.

In the treatment of chronic gout colchicum is highly recommended ; so also is tincture of guaiacum. But certainly, reliance may be had better on iodide of potassium, two (2) drachms in syrup of sarsaparilla or water, four (4) ounces to be taken—one teaspoonful three times a day. In connection with this the patient should use freely the tincture of Peruvian bark or quinine. Carbonite of lithia dissolved in acetated water may be given in doses from five (5) to ten (10) grains once or twice daily ; the quantity of water should be large, say four (4) ounces or more.

The diet in the treatment of different forms of gout is of great importance ; far more so than in the majority of diseases.

Administration of remedies.

Same as given in rheumatism.

POISONS, PARASITES, ETC.

HYDROPHOBIA—CANINE MADNESS—RABIES.

The treatment, etc., for hydrophobia see *short stops*.

WORMS.

Worms are found most frequently in the intestinal canal ; but have been observed in the bladder, kidneys, liver, brain and eyes ; indeed, there is scarcely an organ or structure of the body, in which they are not occasionally seen. There are three varieties of these found in the bowels ; the long round worms, the small white worms and the tape-worm.

The general symptoms which indicate the presence of worms are : The face is pale, a bluish or livid-colored circle round the eyes, countenance frequently changes color, appetite variable and capricious, sometimes voracious, itching of the nostrils and of the anus, disturbed sleep, and grinding of the teeth ; the belly is swollen, though not hard, the stools are slimy and irregular, and griping pains are sometimes felt in the belly. Children who are troubled with worms are generally affected with short dry cough, and pains in the chest, unattended with difficulty of breathing. But the most important symptom, indeed the only one on which complete reliance can be placed, is the discharge of worms, or of portions of them.

The *round-worm* varies from six to ten inches in length, is usually found in the small intestines ; it chiefly infests the bowels of children, sickly persons, and those who are badly fed.

The *thread-worm* or *maw-worm* is from a quarter to half an inch in length and is usually seated in the rectum or lower bowel. It is remarkable for the quickness of its movements.

People of all ages are liable to be troubled with this description; but they are more common in the bowels of children. The particular symptoms occasioned by thread-worms, are itching about the fundament.

The *tape-worm* is composed of numerous pieces united by joints, and is generally an inmate of the small intestines, where it lives on the chyle or milky juice, which is intended to nourish the body. It is seldom less than several feet in length, and is frequently discharged in pieces four or five yards long. In some instances, it has been known to measure upwards of fifty feet. The tape-worm is more common in adults, particularly females, than in children. It is often found alone. Hence the term *tænia solium*.

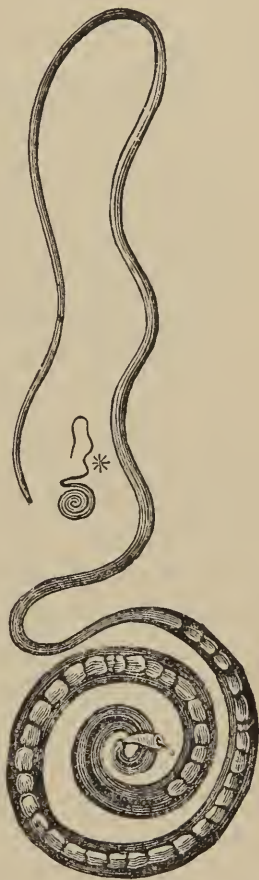
There is no unequivocal symptom by which the presence of this worm in the bowels can be ascertained.

Treatment.

It does not often happen that much difficulty is found in expelling the *common round-worms*. The remedy usually resorted to for the purpose of removing them is oil of turpentine. Before commencing with the remedy, it is usual to administer some purgative medicine.

Turpentine spirits may be given to children with perfect safety in the dose of a tea to a dessertspoonful along with half a cupful or more of milk, linseed tea, gruel or any other demulcent drink.

The best time to take it is in the morning about half an hour before breakfast, but if it produce much sickness of



The one marked with a star, is the natural size of the long thread-worm. The other figure shows the same worm magnified.

stomach or vomiting, the next dose should be given the following forenoon about two hours after breakfast. The dose must be repeated daily for three or four days, a dose of castor oil, a dessertspoonful or more, according to the age, being given every second day with the turpentine, until all are expelled.

The following is a good preparation :

Pink root,	. . . . .	$\frac{1}{2}$ ounce.
Senna,	. . . . .	$\frac{1}{2}$ "
Bi-tartrate of potassa,	. . . . .	1 drachm.
Pulverized jalap,	. . . . .	$\frac{1}{2}$ "
Cardamon seeds,	. . . . .	$\frac{1}{2}$ "
Extract liquorice,	. . . . .	2 drachms.

Dr. Rush was very successful in destroying worms with common salt, which he prescribed in doses of half ($\frac{1}{2}$) a drachm upon an empty stomach in the morning. Santonine, from three (3) to four (4) grains, may be made into a suppository with cacao butter, and put into the rectum every night. For threadworms, the turpentine can be taken in injections. Aloes is the best purgative in such cases, because it acts particularly upon the lower bowels. Pills composed of equal parts of aloes, calomel and scammony, have frequently the effect of completely relieving the patient from worms, without the aid of any other remedy. After the expulsion of all kinds of worms, it will be proper to take from three (3) to five (5) drops of the tincture of steel in a wine-glassful of chamomile tea, or of the infusion of gentian thrice a day for two weeks, as a tonic.

For the tape worm, pumpkin seeds given as follows, will be found effectual :

Take eight (8) ounces, and eat at night four (4) ounces on an empty stomach ; then in the morning take the other four (4) ounces, having steeped them in hot water, and drink the infusion. Nothing should be eaten until noon. This will generally suffice to expel the worm. If not effectual repeat the next night.

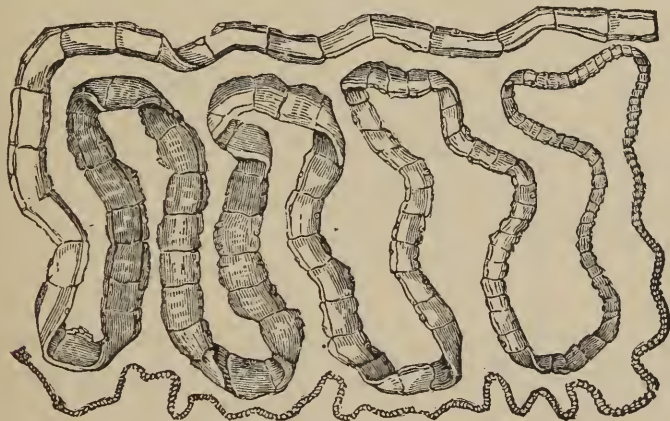
Treatment.

Turpentine, as before instructed, male fern, kooso, and pomegranate bark are frequently used.

Homœopathic treatment.

Aconite.—Given at the commencement of the treatment for nervous irritability which is generally present. A few doses may be given, and repeated every two hours. If this is not effectual, give *ignatia* in the same manner.

Cina.—This is the principal remedy, especially when the following symptoms are present: Boring with the fingers in the nose; the child is nervous, and cries at night in his sleep;



Represents a Tape-worm.
The small end with the rounded being the head.

has severe attacks of colic; picking the lips; face sometimes pale and cold, at others red and hot; capricious appetite; cross and fretful; face bloated; swelling and pain in the abdomen; constipation or diarrhœa; grating of the teeth.

Nux vomica.—When with the other symptoms there is constipation, severe itching, and pricking sensation of the anus.

Spigilia.—In severe cases of worm colic when there is fever and diarrhœa, with craving appetite and chilliness.

Silicea.—Especially for children who are scrofulous.

Santonin.—is an excellent remedy for the different varieties of worm.

DISEASES OF THE SKIN.

Cutaneous diseases may be defined as an aberration of the skin from the standard of health, evinced by an alteration in its appearance, qualities, sensibility, functions, and relations to the rest of the organism.

FRECKLES.

Freckles are a discoloration of the skin caused by exposure to the sun, and are situated in the middle and outer membranes of the skin. The careful application of a small piece of the ointment of the oleate of copper at night upon retiring usually remove freckles.

MOLES.

Mole is a term applied to a certain permanent outgrowth of the skin. They are usually congenital, and are called "mother marks."

Treatment.

Consists in the careful application of a strong solution of potassa fusa, two parts to one of water.

ROUGHNESS OR COARSENESS OF THE SKIN.

Where many cosmetics have been in use. The following was made use of by the celebrated Madame de Maintenon :

Venice soap,	. . . . .	1 ounce.
Lemon juice,	. . . . .	$\frac{1}{2}$ ounce.
Oil of bitter almonds,	. . . . .	$\frac{1}{4}$ ounce.
Oil of rhodium,	. . . . .	3 drops.

ADDISON'S DISEASE.

(See *Kidneys Diseases of*).

PIMPLES (*Acne*)

Acne is a disease common to the period between puberty and full maturity of growth. It is therefore found in both sexes, between the ages of seventeen and twenty-five ; it happens as late as thirty or thirty-five.

It is supposed to be caused in some cases by disordered digestion.

In *acne simplex*, small, red, inflamed pimples arise gradually, which are of a pale yellow color ; these burst, and small quantity of matter escapes, forming a scab, which is detached in a few days, when the base of the pustules remain hard, and of a deep red color.

Acne rosacea always affects the face, and is found usually in adults, and most frequently in high livers ; the pimples are hard, red and small, but as they mature, they grow larger, and finally a bloody matter escaping, forms a small scab. The disease is a very difficult one to cure, and is very unsightly in its appearance.

Acne pustulosa is quite painful, and especially when it appears upon the scalp. All these eruptions are found around the sweat follicles of the skin, and are caused by some obstruction to the perspiration.

Treatment.

Abstain from stimulating food and drinks, keep the blood cool by a daily use of the saline mixture, and daily bathe the parts in a weak solution of common soda. If it should resist this treatment, add one (1) grain of corrosive sublimate to the pint of soda water, and every day increase it one (1) grain until the pimples disappear, or some inflammation is set up ; then discontinue the mercurial and apply glycerine. Should the pimples return, used the mixture of the strength last used. Perseverance in this plan will certainly remove the disease.

Internal treatment.

If constipation exists, saline or vegetable laxatives should be prescribed.

Homœopathic treatment.

Borax.—Internally and externally, especially if connected with suppressed menstruations ; a dose every six hours.

Nux vomica.—Skin sensitive, sore and smarting ; a dose every three hours.

Nitric acid.—Yellow color of the skin, and dryness ; a dose every six hours.

Graphitis.—Chronic dryness of the skin ; a dose every six hours.

BALDNESS (*Alopecia*).

Baldness is sometimes hereditary, at others occasioned by sickness, especially ailments which affect the head ; it is of two kinds, curable and incurable.

If the scalp is covered with a furze, the hair will grow again. If it is shiny, nothing can make it grow, because the roots of the hair are gone.

The following are some preparations for the hair which will be found excellent.

Pulverized sulphate of copper,	.	.	10 grains.
Extract of Spanish flies,	.	.	5 grains.
Lard,	.	.	1 ounce.

Mix, and apply at night.

The following is an excellent receipt :

Bay rum,	.	.	4 ounces.
Tincture of cantharides,	.	.	1 ounce.
Hartshorn,	.	.	1 "
Olive oil,	.	.	2 ounces.

Shake well before using ; apply frequently.

The following is an excellent preparation to promote the growth of the hair, when it is weak and deficient :

Palma Christi oil,	. . . . .	3 ounces.
Oil of lavender,	. . . . .	1 drachm.

BOILS (*Ferunculus*).

When they are found to contain matter, the best way is to make an opening by the use of the lancet. Usually the cavity heals quickly after it has been opened, and nothing is required but a simple cerate dressing.

A boil begins with a pimple in the skin, which continues to enlarge until it reaches the size of a walnut, though sometimes it does not extend beyond the size of a large pea ; it is of a conical shape, red or of a purple hue and hard, with burning heat and great pain.

Treatment.

Apply poultices till suppuration takes place.

BARBER'S ITCH (*Sycosis*).

This term is applied to the variety of the disease which appears on the face, chin and among the whiskers, and is of course, confined to the male sex.

It is supposed to be caught in barbers' shops while being shaved—either from failure to properly clean and scald the razor—or from a damp and solid towel.

At first there will be a few small red pustules attended with an itching and burning sensation. The affected parts become swollen and tender. Each small pustule appears to be perforated with a hair around which a yellowish crust forms.

After a while these pustules dry up and peel off in their dry scales and the eruption spreads, other pustules forming and peeling off in the same way, until it becomes very sore and troublesome.

Treatment.

The general state of the health and bowels require attention. Subdue the inflammation by warm poultices, cut or shave the hair very close, before applying the poultices.

A sure cure is to pull the hair from the centre of each pustule and anoint the places with carbolic acid and glycerine in the following proportions.

Carbolic acid,	. . . . .	15 grains.
Glycerine,	. . . . .	1 ounce.

Wash the affected parts with pure white castile soap and warm water.

CARBUNCLE (*Ferunculus malignans, anthrax*).

A carbuncle may appear without constitutional disturbance, but in general it is preceded by loss of appetite, foul tongue, headache, lassitude, general uneasiness and shivering. At first it can scarcely be distinguished from a common boil. The tumor is circumscribed and flat, the skin of a dark red or violet color.

Treatment.

Make two deep incisions in the form of a cross—completely through to the bottom carrying their extremities a little beyond its circumference. Apply a poultice of flaxseed meal changing frequently, and bathing the part with a mixture of

Carbolic acid,	. . . . .	1 part.
Glycerine,	. . . . .	2 parts.

Or this application may be used instead of a poultice.

Spirits of turpentine,	. . . . .	½ ounce or 2 teaspoonfuls.
Yolk of one egg,		
Pulverized camphor gum,	. . . . .	1 teaspoonful.
Wheat flour, sufficient to form paste,		

If proud flesh appears, sprinkle in burnt alum. The system should be nourished by easily digested food, egg-cream, etc. Tonics may be given if required. Morphine may be administered to quiet the patient.

Homœopathic treatment.

When the inflammation first begins, give the homœopathic remedy, arsenicum; a dose every one or two hours and the attack will be arrested. If it has suppurated apply poultices till the dead tissue all comes away, and then treat it as a common ulcer.

Silicea.—when administered from the commencement. A dose every four or six hours.

Lachesis.—When the carbuncle presents a livid appearance and seems disposed to extend rapidly. A dose every four hours with a yeast poultice externally.

CANCER (*Carcinoma*).

Cancer is a disease common to both sexes. Women are most frequently attacked after the menstrual discharge has entirely ceased; but it often occurs in men at an earlier period of life. It may attack any organ of the body; but in women the breast and womb, and in men the lower lip, stomach, liver and testicles are the parts most frequently affected. The exciting causes of cancer are general and local.

Treatment.

The only safe measure is to seek and follow the advice of a competent surgeon.

Cancer of the female breast is by far the most common.

Many, on detecting a tumor in the breast, let it alone, because they feel no pain or uneasiness; some conceal it for years, from a feeling of false delicacy, and others from a dread of the knife, until, at length, they become alarmed by the increase of bulk, and the stinging pain which it occasions; and then, in all probability, the disease is beyond the reach of treatment.

Any external violence done to the breast, may cause a tumor more or less extensive and painful.

CHAPPED HANDS AND LIPS, AND CHAFINGS (*Excoriations*).

A very common and disagreeable complaint is that of chapped hands. Great care should be exercised by those subject to this affection to avoid going into the air until the hands have been thoroughly dried. Glycerine alone will in some cases make the hands smooth. The best way to use it, is after washing the hands with pure soap—castile is the best,—rinse them in cold water, and when partly dry, put one (1) or two (2) drops of glycerine on them rubbing in thoroughly, then dry on a towel.

Chapped hands should be kept perfectly clean, wiped dry and dusted with powdered starch—slippery elm. If this does not suffice, bathe the part with a solution of sulphate of zinc. Grown people may be treated in the same manner. Cotton may be placed between the parts that rub together and chafe. The following is a simple remedy for chafes : Bathe the parts well in tepid water, dry well with soft cloths, and apply by means of a soft sponge the following :

Acetate of zinc,	. . . . .	15 grains.
Acetate of morphia,	. . . . .	2 “
Glycerine and rose water,	. . . . .	2 fluid ounces.

Apply two or three times a day.

CHILBLAINS, FROST BITE.

Chilblain is a name given to a species of inflammation which arises from exposure to a severe degree of cold. The parts most frequently attacked by it are the fingers and toes, particularly the little finger, the little toe, and the heels.

Treatment.

Stimulating applications are found to be the most efficacious in curing chilblains. One of the best liniments in general

use is composed of an ounce of camphorated spirit of wine, mixed with half an ounce of Goulard's extract.

A tincture of iodine, prepared by dissolving a drachm of iodine in three ounces of rectified spirits of wine is perhaps the best remedy for this troublesome complaint which has yet been tried. It should be used only once a day, and applied gently over the part with a soft brush.

FETID PERSPIRATION OF THE FEET.

But those aggravated cases, in which the feet are constantly bathed in moisture to such an extent that after being worn but a few hours, the stockings are saturated and dripping when wrung, the skin white, macerated, blistered and cracked, rendering locomotion painful in the extreme, while the disgusting odor is constantly perceptible in spite of almost hourly bathings and changes of the stockings, and but little benefited by the measures ordinarily resorted to.

Several years ago I began using salicylic acid in this complaint, combined with some inert absorbent powder, but soon found that while the acid quite promptly removed the fetid smell, the excess of moisture was but little, if at all diminished, and the case was as bad as ever soon after the discontinuance of the remedy. After a number of trials I adopted the following combination, which I have since been using with the greatest satisfaction both to myself and my patients.

Pulverized burnt alum,	. . .	3 ounces.
Salicylic acid,	. . .	3 to 5 drachms.

HAIR, DISEASES OF.

Aberrations of the hair from the normal and healthy standard may be comprised under three heads—quantity, quality and direction. Alternations in quantity, says Erasmus Wilson, as regards quantity of the hair, there may be either excess or diminution.

Excess of hair.

Excess may be the consequence of multiple development from the follicles, leading to the production of a greater number of hairs than usual; or it may result from excessive growth, which brings into view the usually invisible hairs of the body, more or less generally or partially. Of the latter kind are the hairy men and women of whom so many instances are recorded; and the abnormal growth of hair on parts of the body, where its presence is nominally but little perceptible, for example, on the face of women, in the form of mustache, whisker, beard, as well as that of the beard sometimes attaining an excessive length. Moreover, hair may be abnormal in situation as well as in growth, as seen in the varied examples of *piloius nævi*.

Diminution of hair

Diminution may present itself in shortness, from slowness of growth, or numerical deficiency from arrest of growth; and the latter may proceed onwards to baldness, more or less complete. (See baldness).

Alternation of quality.

Alternations of quality of the hair as manifested by variations in its physical conditions, alterations of color, and physiological structure.

Physical conditions.

The hair, normally smooth, lustrous, soft and elastic, may become rough, dull, harsh and rigid, or brittle.

Color. Alteration in color of the hair usually ranges between the light tints of childhood, and the darker hues of the adult, and the arrest of pigmentation, which gives rise to the greyness of every period of life, and the hoariness of old age. Alterations of the color of the hair occasionally take place during the course of a serious illness; or the hair may become blanched in the space of a few hours from mental disturbance. There is another aberration of color of the hair,

which consists of an alternation of brown and white in narrow segments, extending from end to end of the hair—a kind of ringed or banded hair. A few examples of this peculiar changes in the hair have been preserved and recorded.

Structure.

Aberrations in structure of the hair are shown by its atrophy or attenuation ; by its defective consolidation ; by a pathological alteration of its elementary constituents ; and by the morbid changes induced by syphilis.

Alteration in direction.

Altered direction of the hair is met with in the edges of the eyelids, when the hair may grow inwards and press against the cornea, so as to give rise to conjunctivitis. The matting or felting of the hair may likewise be ascribed to misdirection, though in a different sense, namely, as resulting from neglect. (See *plica polonica*.)

PLAITED HAIR (*Plica polonica*).

This disease has been defined by Hooper, as a disease of the hairs in which they become long and coarse, and matted and glued into inextricable masses.

The disease is one of the most horrible kind, incurable, and rendering its victim an object as hideous to behold as the leper of the East. The hair instead of dividing into fine and silky threads, conglomerates into thick matter, with only one thick root, which bleeds on being cut, so that no relief can be obtained save by cauterization of the whole mass.

Apply to a reliable physician, and follow advice.

HOUSEMAID'S KNEE.

This affection consists of a swelling of a bursa over the kneecap, between it and the skin ; with considerable pain, stiffness, or inflexibility of the knee in consequence of continual kneeling, especially on hard damp stones and floors, and to which housemaids (hence the name) and others, from

the nature of their occupation are especially liable. Treated with setons.

Homœopathic treatment.

Rhus—is usually sufficient to effect a cure. A dose morning and evening, for four days; with *rhus opodeldock* well rubbed in night and morning.

Lycopodium—is often of marked benefit when *rhus* ceases to do good in a few days. A dose night and morning.

Silicea—is most important, and successful in the severer forms of this affection.

LEPROSY (*Lepra-elephantiasis*).

All observers agree that an unwholesome and insufficient diet, exposure to atmospheric vicissitudes without sufficient clothing, residence in foul, damp dwellings and the neglect of personal cleanliness, serve to aggravate the disease, and to accelerate its progress; and, on the other hand, that it is greatly retarded and mitigated by more favorable conditions in these several respects.

Leprosy is believed by some to be hereditary, but it occurs in persons in whom no hereditary tendency can be traced. Sometimes only one member of the family will be affected. Sometimes the child will not have the same form as the parent, one exhibiting the tubercula, and the other the anæsthetic phase of the disease. It will skip a generation to appear in the next. It is a disease by itself quite independent of any other.

Notwithstanding the oft-repeated assertion that leprosy is not contagious, and that white people rarely, if ever become afflicted with the disease, the fact remains that the dread scourge is becoming more and more frequent among Caucasians.

In the test case of the Caucasian Erick Erickson, of San Francisco, Dr. John V. Shoemaker prescribed the treatment. It was an aperient pill, followed by a dose consisting of two (2) teaspoonfuls of compound tincture of gentian, with five (5)

drops each of tincture of *nux vomica* and dilute phosphoric acid in water after meals. It was hoped by these remedies to tone up the digestive organs and assist nutrition. Equal parts of chaulmoogra oil and oleate of mercury were ordered to be rubbed over all the anesthetic spots after the sufferer had taken a steam vapor bath. Outdoor exercise and something to occupy his mind were especially urged. After three days the young man looked somewhat better, his tongue was cleaner and his digestion better. All the other symptoms were, however, as before. After a clinic, at which nothing was devised for the benefit of the patient, Dr. Shoemaker told him that his case was incurable.

MOSQUITOE BITES.

The following lotion is almost a sure preventive of bites from mosquitoes, black flies and other troublesome insects.

Spirits of camphor.

Oil of Penny royal,

Glycerine, each, 1 ounce.

If mosquitoes or other blood-suckers infest sleeping rooms at night, uncork a bottle of pennyroyal, and they leave in great haste, nor will they return so long as the air in the room is impregnated with the fumes of that aromatic herb.

NETTLE RASH.

No part of the body is exempt from nettle-rash. It appears in large, flat, elevated patches or weels, of irregular shape, hard, of a pale red color, but in some instances whiter than the surrounding skin, and is attended with severe itching and tingling. Nettle-rash occurs most frequently in young people and females; it is generally if not always connected with disorder of the digestive organs, and in particular constitutions, is readily produced by certain articles of food.

Treatment.

Nettle-rash generally yields in the course of two or three days under the use of low diet, mild laxative medicine, and drinking freely of lemonade, or barley water containing a little nitre.

Homœopathic treatment.

Dulcamara, *aconite*, *nux vomica*, *pulsatilla*, *antimonium crudum* and *belladonna* are all useful in this disease.

Veratrum viride, *copaiba*, *rhus tox.* and *coniocladia* will in certain cases, cure without much trouble.

RING-WORM, OR SCALD-HEAD.

Ring-worm or scald-head is a common and well known disorder of the hairy scalp occurring chiefly in children. It is manifested under various forms.

It usually appears in patches of an oval or circular form, each of which consists of numerous pustules of a pale yellow color. These soon burst, and the discharge forms crusts or scabs. It may extend over the whole head, and sometimes attacks the forehead and neck. The hair appears to be affected from the commencement of the disease, and gradually falls off; the baldness thus produced constitutes one of the leading features of the disorder.

Ring-worm is decidedly contagious.

This disease is shown to be a vegetable parasite, which burrows in the skin. In many instances, the parasite plant or burrows so deeply that the skin may be destroyed by carbolic or nitric acid without touching the disease.

Treatment.

The hair must be cut as close as possible, and a poultice of flax seed meal mixed with a solution of subcarbonate of soda applied, after having first carefully washed the whole scalp with castile soapsuds, tepid or warm. After the poultice has remained all night remove it and wash the scalp clean, and if there seems to be little or no inflammation,

apply a weak solution of oxalic acid, one (1) grain to an ounce of water, at first. Apply this through the day and poultice as above directed at night—both to lessen the inflammation and remove the scab. A drop of creosote may finally be added to each ounce of the solution of oxalic acid. It requires considerable time to cure this disease.

SCARS, REMOVAL OF.

Persistent rubbing and kneading of scars of the face, both those due to burns and those resulting from bone caries, as preparatory to blepharoplasty, have in a number of instances in the writer's experience, yielded most excellent results. Adhesions of scars, slight or extensive, to the subjacent parts have been slowly, cautiously and painlessly detached, and a gradual absorption of the firm material in the dense part of the scar has been brought about.

Glycerine is valuable in preventing scars in burns. Diluted with an equal quantity of water, or pure, according to the nature of the burn. Or a combination of one (1) part of glycerine with three (3) parts of collodion.

SWEATING, DISORDERS OF.

For offensive perspiration, in ordinary cases, the use of pure water, to which—say a basinful—a spoonful of spirits of ammonia has been added, will effect the purpose; but if it is a very bad case, do as follows: Keep the bowels freely open by saline cathartics, exercise freely in the open air, be cautious at the dinner table, and eat only a reasonable amount, avoid rich food and late suppers, rise early and breathe the fresh morning air, and be temperate in all things.

Get one ounce of chlorate of potassa. Put this to one pint of water—pure rain water, if possible—and take one teaspoonful of the mixture night and morning. The salt will not all dissolve in the bottle, and as fast as the liquid is removed it may be refilled till it does. After taking it internally for a few days, a little of the mixture—about a tablespoonful may be added to a sufficient quantity of water in a

wash-bowl, and the surface of the body sponged with it every day or so.

The remedy is entirely harmless, and may be continued for months without injury.

Dr. T. H. Currie, says : "For over thirty years I have used the following prescription, without a single failure, in sweats from whatever cause :

Alcohol,	.	.	.	.	.	.	.	1 pint.
Sulphate of quinine,	.	.	.	.	.	.	.	1 drachm.

Wet a small sponge with it and bathe the body and limbs, a small surface at the time, care being taken not to expose the body to a draught of air in doing it. In one case, a neighbouring physician was poisoned while dressing a mortified finger. He suffered untold misery, and was also drenched with perspiration for a number of days, and his life despaired of. When I saw him, I ordered him to be bathed immediately in the above solution, and that this be repeated once in two hours. The third application stopped all perspiration, and convalescence began at once."

BUNION.

An enlargement and inflammation of the small membranous sac, called *bursa mucosa*, caused by the pressure of tight boots or shoes, or to a similar swelling on the first joint of the little-toe, or on the instep.

Treatment.

Since a bunion is caused by undue pressure, the pressure should of course be removed.

SHINGLES (*Herpes, zoster*).

This singular disease is characterized by an eruption of vesicles, extending in a semi-circular form round one half of the body. In general the eruption is preceded for two or three days by a feeling of languor, slight headache, occa-

sional rigors or shivering, loss of appetite, and increased quickness of the pulse, with heat, aching, a disagreeable feeling of tingling, and sometimes a stinging or burning pain in the part where the vesicles are about to make their appearance. The eruption usually commences at, or near, the navel, sometimes at the lower part of the chest, and extends gradually round to the spine, or it breaks out first close to the spine, and follows an opposite course, so as to appear in either case, like half a sash about three or four inches in breadth.

This disorder is sometimes very slight, unattended with feverish symptoms, and terminates completely at the expiration of a fortnight; but in most cases it lasts from twenty-five to thirty days or even longer; and sometimes leaves a severe pain in some part of the skin.

Shingles is not a dangerous disease.

Treatment.

Active treatment is not required. Mild laxatives should be taken occasionally; and as long as feverish symptoms are present, the diet should be mild.

Lemonade or other cooling beverages may be taken freely. To relieve the smarting and tingling sensation, the patient may wash the parts with equal quantities of laudanum and tepid water. Ointments and other greasy substances ought not to be employed. The oxide of zinc should be sprinkled over the vesicles when they begin to break, with intention of absorbing the fluid.

Homœopathic treatment.

For shingles it is well to commence the treatment with aconite especially when there are fever, languor, headache, etc. After having given a few doses of this, give rhus tox., a dose (six (6) globules) every three or four hours.

If there be nausea and vomiting, give tartar emetic.

When matter forms in the vesicles give hepar sulphur, the same as rhus.

When there is a burning sensation in the vesicles, with dry skin, thirst, etc., give arsenicum.

TETTER (*Herpes*).

Tetter may be divided into the dry and the moist. Of the dry variety dandruff may be taken as an example.

Moist tetter includes the following : *eczema*, which consists of small, watery pimples, in various parts of the body, and closely crowded together, and *pemphigus*, an eruption of bubbles, containing a watery fluid, like those raised by a blister. They vary in size from a split pea, to half a walnut shell. They rise up very rapidly, break, and leave a raw surface which soon heals.

Treatment.

The first thing to be considered in the treatment of these affections is cleanliness.

An occasional warm bath will be found very beneficial, as well as the sulphur vapor bath.

For the *eczema*, the following may be used :

Take two ounces, each, of yellow dock root, and blood root ; wash, and put them in half a pint each of alcohol and vinegar ; let it stand for a week or ten days before using. This preparation should be applied once or twice a day, and also the following ointment, applied as often :

Fresh butter,	. . . . .	4 ounces,
Venice turpentine	,	1 ounce.
Red precipitate,	. . . . .	3 drachms.

Mix.

For *pemphigus*, the following ointment may be used :

Oxide of zinc,	. . . . .	1 drachm.
Spermaceti ointment,	. . . . .	1 ounce.
Mix.	Apply at night.	

WARTS.

The excrescences from the skin, called warts, may appear on any part of the body.

Treatment.

Warts frequently disappear without treatment. Soft warts may be destroyed by applying the tincture of steel to their surface, or by anointing them daily with mercurial ointment. Hard warts cut off with a knife or scissors, and then apply caustic to destroy their roots. These excrescences may be destroyed by touching them repeatedly with lunar caustic, blue vitriol or nitric acid ; or they may be effectually removed by the application of the chloride of zinc. A wart with a narrow neck may be destroyed by fastening round it a silk thread or a horse hair. After it drops off, the root should be touched with caustic. The best application for destroying warts about the anus or genital organs, is a powder composed of equal parts of the powder of savine-leaves and verdigris.

Homœopathic treatment.

Causticum is perhaps the most serviceable medicine for warts on the face or elsewhere.

Thruja should be employed in cases in which the causticum produces no effect, and especially when the warts occur in crops. A dose, night and morning ; and every night paint on with a camel's hair brush, ten (10) drops of the strong tincture to a tablespoonful of water.

Sulphur should be employed after the second course of *thruja*, where neither it nor causticum has produced any effect.

DISEASES OF THE URINARY AND GENERATIVE ORGANS.

INFLAMMATION OF THE BLADDER (*Cystitis*).

The symptoms which characterize acute inflammation of the lining membrane of the bladder or its muscular substance, are heat, tension, pain more or less severe at lower part of belly, increased on pressing with the hand over bladder, or by sneezing, coughing, going to stool, or by any movement of the body. Great and frequent desire to void urine, which is high-colored and passed in a few drops at a time with much pain and difficulty, and sometimes it cannot be discharged.

As the disease advances the lower part of the belly appears swollen, by the bladder being distended with urine. The slightest pressure there is insupportable, the abdomen painful to the touch. The skin hot and dry, pulse quick and hard, the tongue dry, great thirst. The disease increasing, the pulse becomes small and very frequent, hiccough, vomiting delirium, fainting and death ensue.

The inflammation, however, may be of any grade. Sometimes it is mild, yielding readily to proper treatment and continuing but a short time.

Causes.

It may be brought on by a variety of causes, such as stone in the bladder, wounds, blows, irritating injections, the inflammation of gonorrhœa, extending along the urethra or urinary canal to the bladder; boils, swelling of the prostate gland.

Acute inflammation of the bladder continues from ten to twenty or thirty days.

Treatment.

The use of the catheter is hardly ever advisable in these cases.

The most active treatment should be used to subdue the inflammation. Warm fomentations should be constantly applied over the lower part of the belly, and the bowels are to be acted on by a full dose of castor oil, or an injection of marsh mallow-decoction, or linseed tea with an ounce of castor oil. The diet must be very light.

At the commencement only very small quantities of linseed tea or other mucilaginous drink should be allowed.

Frequent alkaline sponge baths, and fomentations may be applied over the bladder. Opium enough to procure rest, may be used. Injections of warm water, with a few drops of tincture of arnica, will sometimes be of service. Painting the lower part of the belly with tincture of iodine often relieves the patient.

Chronic inflammation of the bladder.

This is a chronic inflammation of the mucous membrane of the bladder.

Symptoms.

A dull, uneasy sensation of pain is felt in the region of the bladder, with a frequent desire to urinate and difficulty in retaining the fluid in the bladder. The urine is mixed with mucous, which on standing in a vessel, settles to the bottom, leaving the urine clear.

A sensation of heat in the bladder, the appetite becomes deranged, and there is in some cases a slight fever, coated tongue, restlessness and thirst.

Treatment.

To reduce the inflammation apply croton oil or a cold compress every night. Proper care should be given to the skin. The following diuretic drops will be found useful.

Spirits of nitre,	. . . . .	1 ounce.
Copaiba,	. . . . .	1/2 "
Canada balsam,	. . . . .	1/2 "
Oil of Juniper,	. . . . .	2 drachms.
Oil of cubebs,	. . . . .	2 "
Oil of anise,	. . . . .	2 "
Laudanum,	. . . . .	2 "

Mix. Take one (1) teaspoonful three times a day in slippery elm tea. The patient should be kept from the use of spirits, tea and coffee.

Infusions of buchu, trailing *arbutus uva ursi* may be used as drinks.

Acetate of potassium in one (1) drachm doses, diluted in water—once in three hours—will promote the flow of urine, and ease the extreme pain and pressure.

Homœopathic treatment.

Aconite should always be given first.

Cantharis is the principal remedy, when the pains are shooting, tearing and cutting.

Belladonna.—When the pains are worse periodically, shooting from the kidney down into the bladder, attended with colic.

Pulsatilla.—In delicate females where the menses have stopped.

Nux vomica.—When there is distension, pressure and weight in the kidneys.

Arnica.—Should be given, and also applied externally, when the disease is caused by external injuries.

Hyosciamus.—When there are spasms in the neck of the bladder.

STONE IN THE BLADDER (*gravel*).

Stone in the bladder arises in most cases from a portion of gravel having passed from the kidney along the ureter to the bladder, and there gradually increased in size by succes-

sive depositions upon its surface ; sometimes it originates in the bladder.

Surgery possesses two methods of extracting a stone lodged in the bladder. The first is *lithotomy*, an operation which consists in making an incision into the bladder sufficiently large to allow the surgeon to lay hold of the stone with forceps and extract it entire. The second is *lithotrity*, which consists in breaking the stone within the bladder, by means of certain instruments constructed for the purpose, so that the fragments may be discharged from the bladder by the natural passage.

BRIGHT'S DISEASE (*albuminuria, albuminous nephritis*).

The disease was formerly called albuminuria—because the albumen escaped by the kidneys and was discharged in the urine, instead of remaining to nourish the blood. It is now called Bright's disease because a doctor of that name first called attention to it.

The only constant symptoms are scanty and highly albuminous urine and fever. The urine is greatly reduced in quantity and comes away only in drops. It is in some cases so abundant in albumen, that it is converted into a jelly by standing. The urine varies greatly in color, sometimes blood-red ; and froths much when shaken. Minute cylindrical tubes are sometimes discoverable in it. The disease is usually found in people between the ages of thirty and sixty, and is more in men than women. It frequently follows upon exposure to wet and cold, in a drunken fit, or an attack of scarlet fever.

The services of the best physician should be called in at the first indication or suspicion of the disease ; in the meantime the patient should wear warm flannel, avoid alcoholic drinks, highly seasoned food, rich pastry and be careful of exposure to wet or cold, and be as temperate as possible in all of his habits.

Homœopathic treatment.

In the acute form the leading indications are :

Aconite.—Feverishness and shivering.

Gelseminum, cantharides, apis, squills.—When water is scanty and evacuated with discomfort.

Hellebore, apis, apocynum in dropsical swelling.

Arsenic and *digitalis* in prostration.

Phosphoric acid, apocynum in debility.

DIABETES.

Diabetes signifies simply an excessive flow of urine. The term is applied to two distinct affections, diabetes insipidus and diabetis mellitus or saccharine diabetes.

Diabetes mellitus, or saccharine diabetes, called also *glycosuria* is distinguished by the following symptoms.

The first symptoms experienced are indigestion, general debility, constipation of the bowels, thirst, and irregular, capricious and sometimes voracious appetite. At length the patient notices that the urine is considerably augmented in quantity, and, from the time that this observation has been made, he finds that the quantity discharged gradually increases.

The urine is of a pale straw color, sometimes insipid, but in the great majority of cases it has a sweetish taste and faint smell, somewhat resembling that of violets, and contains a considerable quantity of sugar. The quantity of urine voided varies from eight to twenty pints daily. The quantity of sugar contained in the urine is much greater in some cases than in others; an ounce of sugar has been extracted, in several cases, from each pound of urine.

Diabetes runs its course in some cases in a month or two, and continues in others during several years. It is frequently complicated with other diseases.

Treatment.

This disease in its various forms, like Bright's disease should be treated by an experienced physician.

Homœopathic treatment.

The principal remedies are phosphoric acid, carbo veg., conium, muriatic acid, mercury, belladonna, rhus, opium.

When mercury and sulphur are given, they may be given in alternation.

Administration of remedies.

Of the selected remedy give a dose morning and evening, and each remedy should be continued for one or two weeks before changing to another.

When the pellets are used, give six (6) at one dose. Frequent sponging of the body in cold or tepid water will be found beneficial.

GONORRHŒA (clap, gleet).

Gonorrhœa consists in a discharge of yellow matter from the genital parts of the male or female, excited, in all cases, by the application of a contagious material from one individual to another. In males the discharge comes from the inside of the urethra or passage to the bladder; in females, from any part of the membrane which lines the genital parts. The infectious matter which excites gonorrhœa is generally communicated during unclean coition; but it has been proved beyond all doubt, that a discharge exactly similar to that of gonorrhœa may, under certain circumstances, be produced by connection with a woman whose genital parts are perfectly sound. Gonorrhœa may occur at any time after impure connection, but usually begins from the third to the seventh day, by an itching at the orifice of the urethra, which, if examined, appears unusually red and a little swollen. Soon afterwards a slight running takes place from the urethra, of a whitish fluid, and this gradually increases in quantity, while at the same time it becomes more thick, until at last thick yellow matter issues from the canal. The disease is now fully established, and gives rise to pain during the passage of the urine, (scalding;) sometimes this pain is extremely severe, but, in other cases, the patient scarcely feels any un-

easiness of the kind during the whole course of the disease. In ordinary cases of gonorrhœa the peculiar inflammation of the urethra, which constitutes the disease, does not extend up the passage beyond two inches from its orifice.

When the inflammation or irritation extends from the urinary passage to the spongy substance which surrounds it a very painful affection of the genital organ, called *chordee*, is excited.

When women are affected, the disease is generally more mild, and not so apt to irritate the bladder, or to produce swelling in the glands of the groin. The pain is commonly slight, and soon disappears; the scalding, also, is more frequently absent altogether, and the running soon terminates in a discharge of matter which bears a close resemblance to the whites, or *fluor albus*.

The time during which a gonorrhœa lasts is extremely variable; if left to itself, the inflammation usually subsides in four or five weeks, and turns into a chronic discharge (*gleet*) of slimy mucus from the urinary passage, without any pain, scalding, or unpleasant symptom.

It may be distinguished from syphilis by there being no chancres—eating sores—but the whole surface under the prepuce looks raw, and throws off a profuse amount of very filthy looking discharge. The virus, like that of syphilis, may be absorbed and occasion buboes which cannot be distinguished from those produced by pox; they are, however, not so liable to suppurate, and are much easier removed by resolution.

Treatment.

Taken at its inception, while it is confined to about an inch of the urethra, it can be arrested at once. Procure half ($\frac{1}{2}$) an ounce of a ten-grain solution of nitrate of silver, and a small glass penis syringe; grasp the organ about midway, and press it between the thumb and finger, while an assistant throws up some of the medicine; let the syringe remain in for a few moments, so as to prevent the solution from passing out.

Gonorrhœa may often be prevented by certain attention to cleanliness after connexion.

The *chordee*, and painful erections, which almost always attend severe gonorrhœa, may be relieved by the following draught, taken before going to bed :

Extract of hemlock,	. . . . .	5 grains.
Liquor of potash,	. . . . .	20 drops.
Camphor mixture,	. . . . .	4 ounces.

Or a pill, containing one grain and a half ($1\frac{1}{2}$) of opium, with five (5) of camphor, may be taken at bedtime, and repeated, if necessary, in the morning. It has been found beneficial to rub the under surface of the genital organ with an ointment composed of equal parts of fresh belladonna leaves (powdered) and lard. When the effects of the *chordee* are long in going off, we must rub in a small quantity of the camphorated mercurial ointment, every night, along the surface or sides of the genital organ.

When there is *chordee* at night, take thirty (30) or forty (40) drops of laudanum at bedtime, or the following :

Powdered opium,	. . . . .	$1\frac{1}{2}$ grains.
Camphor,	. . . . .	10 "
Mix, and take at one dose.		

The following injections have been found useful :

Chloride of zinc,	. . . . .	from 1 to 3 grains.
Distilled water,	. . . . .	1 ounce.

Mix, and inject a teaspoonful every six or eight hours.
Or this :

Decoction of golden seal,	. . . . .	1 ounce.
Sulphate of zinc,	. . . . .	3 grains.
Mix, and use as preceding.		

Balsam copaiva,	. . . . .	5 drachms.
Gum of extract of opium,	. . . . .	1 grain.
Water,	. . . . .	7 ounces.
The yolk of one egg.		

Mix, and inject several times a day. /

For chordee, take at bedtime a pill of camphor and belladonna, in the proportion of five (5) grains of the former, to half ($\frac{1}{2}$) a grain of the latter.

When the disease becomes chronic, or takes the forms of gleet, an injection of an infusion of common green tea with five (5) or six (6) grains each of sugar of lead, and sulphate of zinc, to each ounce of the infusion may be used. At the same time use the following :

Solidified balsam of copaiva,	. . . . .	1 drachm.
Venice turpentine,	. . . . .	30 grains.
Podophyllin,	. . . . .	10 "

Mix well, working in as much pulverized rhubarb as possible, and make into thirty (30) pills. Dose, two (2) or three (3) pills twice a day, until they operate on the bowels, then one (1) pill twice a day.

The use of the tincture of aconite root, one (1) minim, may be used every hour with advantage, but the patient while using this remedy, should be carefully watched, as the drug is very active and poisonous.

Homœopathic treatment.

During the first stage, nitrate of silver in the proportion of two (2) or three (3) grains to an ounce of water, or sulphate of zinc in the proportion of four (4) grains to an ounce of water, used as an injection, will cut short an attack. The patient should, at the same time, observe strict temperance and quiet. Aconite may be given at the same time, a dose every two or three hours.

Cantharides or cannabis may be given in alternation with aconite.

Infusion of hydrastis Canadensis is recommended as an injection, in the proportion of an ounce of the powdered root to a pint of water. It should be thrown into the urethra with a syringe every night.

Cantharis may be given when the inflammation has extended to the bladder, and there is scalding and burning along the passage, with frequent urging to urinate. It may be given in alternation with aconite.

The chlorate of potash is recommended to be used as an injection. Dissolve one (1) drachm in an ounce of water, and give an injection every hour for twelve hours. This will be effectual in most cases.

Other internal remedies are mercurius, Nux vomica, cubebæ, pulsatilla, copaiva, sulphur.

Administration of remedies.

Of the remedy selected, give six (6) globules every two three, or four hours.

GLEET.

This is a urethral discharge, milky, viscid, scant in quantity, appearing as a drop at the opening of the penis, or as shreds floating in the urine.

It is often the sequence of badly cured gonorrhea, but is also frequently occasioned by exposure to cold and wet, or by excessive sexual intercourse. The treatment which has rarely failed in my hands of giving complete relief is to fill a bottle about half full of equal parts of chippings of the knots found in pine plank and wild cherry bark, and then fill it with good whisky, and take one (1) or two (2) tablespoonfuls three times a day. A burgundy pitch blaster applied to the loins will assist the cure, as also will mild astringent injections into the urethra; an infusion of common green tea I prefer to any thing which I have found as an injection.

Gleet should be treated with injections of the following :

Nitrate of silver,	. . . . .	1 to 4 grains.
Water,	. . . . .	1 ounce.
Sulphate of zinc,	. . . . .	8 grains.
Tannin,	. . . . .	1 scruple.
Water,	. . . . .	5 ounces.

Mix.

INFLAMMATION OF THE KIDNEYS (*nephritis*).

Inflammation of the kidneys appears to be of two kinds; one arising from the general causes of inflammation, and seated principally in the external membrane of the kidneys, the other occasioned by the stimulus of the gravel or stone in the pelvis or cavity of it, and the inflammation occupying the interior parts.

A fit of the gravel is caused by the descent of gritty particles or small stones (*renal calculi*), from the kidney, along the ureter to the bladder. Small stones sometimes reach the bladder without occasioning much pain or uneasiness, but in general they give rise to very distressing symptoms.

The patient is suddenly seized with severe pain, in region of kidney, extending along the ureter to bladder, and even to the point of the penis. Also a dull pain, or sensation of numbness, at the inside of thigh, of side affected, with painful retraction of the testicle. The urine is passed in small quantity, tinged with blood, frequent vomiting, violent sickness at the stomach, extreme anxiety. The duration is variable, and depends on resistance offered to passage of stone towards the bladder; as soon, as it gets into that organ, the symptoms cease.

Treatment.

The treatment of this affection should be chiefly directed to two points.

To mitigate the pain and facilitate the progress of the stone from the kidney to the bladder.

The bowels are in the first place to be freely opened by

means of castor oil, calomel or some other active purgative ; but if there be much nausea and vomiting, it will be better to administer an injection to the bowels, containing castor oil and common salt. Opium, which may be regarded as a sheet-anchor in this affection, is then to be given in the dose of one (1) to two (2) grains, and repeated every two or three hours, or at longer or shorter intervals, according to the urgency of the symptoms.

Inflammation of the kidneys may arise from exposure to cold and wet ; strains of the back and loins ; blows and falls ; hard riding.

It is no other way to be distinguished from the disorder above described, than by the pulse being full and hard, the tongue foul, the thirst urgent, the skin hot and dry, and in a word, by the presence of the usual symptoms of inflammatory fever.

Difficulty of making water is one of the symptoms attendant on this disease ; to obviate it, some practitioners give heating diuretics, such as turpentine, balsams, etc. It will be more advisable to apply warm fomentations over the region of the bladder and kidney, to eject emollient clysters with an addition of opium, and to make the patient drink frequently of warm diluents.

A decoction of the leaves of the peach tree (*amygdala Persica*, Linn.,) drank in the quantity of a pint a day, has been found a very useful remedy in many cases of nephritis.

When the urine deposits a quantity of muco-purulent matter, showing that the inflammation has terminated in a suppuration, or that an ulcer has already formed in the kidney, the balsams and turpentine may be used with advantage ; the best that I have tried is fat pine chopped up and put in whiskey.

One of the best medicines, however, with which I am acquainted, in such cases, is the *urva ursi*, which may be given in doses of half ($\frac{1}{2}$) a drachm, or a drachm three times a day. It has been tried in many instances, and with happy effect.

The feet should be placed in a hot mustard bath, or mustard poultices applied to them.

In chronic inflammation of the kidneys, the bowels should be kept open by a mild purgative, as two parts of powdered rhubarb and one part of bi-carbonate of potassa, of which take from three (3) to ten (10) grains at a dose, sufficiently often to keep the bowels well open. Infusion of queen of the meadow, uva ursi, trailing arbutus, wild carrot, etc., may be used with benefit.

Acute inflammation of the kidneys should never be treated except by a physician, when one can be procured.

Homœopathic treatment.

Camphor.—Should be given when the disease is caused by the application or use of the Spanish fly (*cantharides*). Give one (1) or two (2) drops of camphor on a lump of sugar, every hour or two, until better.

Aconite.—Should always be given first, either alone, or in alternation with some other remedies. This will sometimes cure a case without any other medicine.

Cantharis.—Is the principal remedy, when the pains are shooting, tearing and cutting.

Belladonna.—When the pains are worse periodically.

Pulsatilla.—In delicate females where the menses have stopped, or are very scanty; also when the urine is scanty.

Nux vomica.—When there is distention, pressure, and weight.

Arnica.—Should be given, and also applied externally, when the disease is caused by external injuries.

Other remedies are cannabis, terebinth, balsam copaiva.

Administration of remedies.

Dissolve of the selected remedy, twelve (12) globules in half a teacupful of water, and give a teaspoonful every half hour, or two hours, according to the urgency of the symptoms.

URINE, INCONTINENCE OF (*wetting the bed*).

Inability to retain the urine is a symptom of various disordered conditions of the urinary organs. In people advanced in life, it is frequently associated with retention of urine. The bladder is constantly full, and every movement of the body causes the urine to escape; in this manner it passes involuntarily, as quickly as it is secreted by the kidneys.

It is often connected with a weakened or paralyzed state of the lower limbs, which, in many cases, is caused by injuries to the spine, or by some disorder of the spinal marrow.

Treatment.

The treatment generally relied on, in this form of disorder, consists in cold bathing, more especially the daily application of the cold douche (a stream of water applied with force to any part of the body) to the lower parts of the body—the application of blisters to the lower part of the back, (*sacrum*)—the internal use of the tincture of cantharides, in doses of ten (10) drops, three times a day, in half ($\frac{1}{2}$) a tea-cupful of gum-water or linseed tea—and tonic remedies, such as quinine or the prepared rust of iron. In some cases the introduction of the *catheter* has been found serviceable.

Children are particularly liable to incontinence of urine.

A child on going to bed should not be allowed to drink water, and should be taken up several times during the night to urinate.

The following may be taken with advantage.

Benzoic acid,	. . . . .	2 drachms.
Cinnamon water,	. . . . .	6 ounces.
Mix.	Dose, a teaspoonful three times a day.	

The following may be used with good effect :

Muriated tincture of iron,	. . . . .	1 ounce.
Tincture of cantharides,	. . . . .	$\frac{1}{2}$ “

Mix, and give to a child three (3) drops for each year of its age, three times a day.

Homœopathic treatment.

Silicea may be given, a dose every evening. If not better within two weeks, give *sepia* in the same manner.

Sulphur, arsenic, and *carbo veg.* may be given when other remedies do not relieve.

Other remedies are *belladonna*, *hyosciamus*, *cantharides*, *nux vomica*, *ignatia*, *pulsatilla*, *rhus*, *mercury*, *cina*.

When the inflammation is owing to paralysis, the remedies are *cantharides*, *nux vomica*, *rhus*, *uva ursi*.

Administration of remedies.

Of the remedy selected, give a dose, morning and evening. If the pellets are used, give four (4) or six (6) at a dose.

URINE, RETENTION OF (*Strangury*).

Retention of the urine is either complete or incomplete. In the former case, no urine can be passed, or only a few drops are voided with great straining, and at intervals, without relief to the patient, whose condition soon becomes most distressing. In the latter, the symptoms are not so urgent, the patient passes, occasionally, a considerable quantity of urine, without the pain or distention at the lower part of the belly, being much, if at all relieved.

Retention of urine may occur in persons who have been prevented from making water by delicacy, indolence, or other causes, until the bladder, from over distention, has become so weakened that it loses its contractile power, and is unable to empty itself. In this case, the feet ought to be placed in water as hot as it can be borne, and warm fomentations should be applied over the lower part of the belly, or the penis may be immersed in a basin of warm water; by these means, continued for some time, and the application of gentle pressure over the bladder, the patient will occa-

sionally succeed in voiding his urine. In general it is found necessary to draw off the urine by means of a *catheter*. In instances, twice or thrice daily, or even more frequently, for several days, or even weeks.

A simple and excellent method of restoring the tone of the bladder is to pour cold water on the lower part of the belly from a height, by means of a jug or tea-kettle, night and morning until the catheter is no longer required. Retention of the urine, from a weakened or paralyzed state of the bladder, may also arise from certain affections of the brain, or from injuries done to the spine from blows or otherwise. In the latter case, some degree of insensibility and weakness of the lower limbs is generally present.

This form of the disorder is often symptomatic of particular diseases. It occurs sometimes in the course of fevers, painters' colic, dysentery, etc. In all such cases the state of the bladder should be carefully attended to, and the catheter employed at least three or four times in the course of twenty-four hours, until the patient recovers from the disease on which the retention depends.

Strangury sometimes arises from the internal administration of Spanish flies (cantharides), or their external application in the form of blisters.

These symptoms are soon relieved by drinking freely of linseed tea, barley water, decoction of marsh mallow, or gum water prepared as follows: By pouring a pint of boiling water on an ounce of gum arabic, may be given freely, with the addition of from five (5) to ten (10) grains of nitre to each pint.

In severe cases take forty (40) or fifty (50) drops of the tincture of henbane.

These remedies are also very useful in strangury which attends gonorrhœa. In this last case much relief may be afforded by immersing the penis in warm water.

The most valuable medicinal agent when the catheter is not at hand, is opium in full doses. It allays involuntary straining, and sometimes thus enables the patient to relieve

himself by the natural method, at all events to some extent.

The error in practice which has been most common, is to give doses of ten (10) to fifteen (15) minims of laudanum, when thirty (30) or forty (40) would have been better. As a general principle, however, it is not to be forgotten that purgation commonly promotes the expulsive action of the bladder, often materially so, and tends to afford relief.

DISEASES OF WOMEN AND CHILDREN,

FEMALE ORGANS OF GENERATION.

An accurate knowledge of certain points in the anatomy of the female organs of generation is essential to the comprehension of the most important of the processes of reproduction.

When we proceed to study the structure of any of the female organs, it is important to have a clear idea of the general arrangement and the relation of these parts.

The pelvis is composed of five bones, viz. : the sacrum, or arch bone ; the innominati, or two side bones ; and the coccyx, or crupper bone.

The os sacrum forms the posterior or hinder part of the pelvis, or basin, and is attached, above, to the last lumbar vertebra, or backbone, of which it is really only a continuation ; below, it is attached to the os coccyx, and at each side to the os innominati.

As the nerves which issue from the front of the inside of sacrum are subject to be pressed upon by the contents of the pelvis, it is easy to account for the various pains and aches in lower part of back, from pressure of hardened fæces in the lower gut ; from the womb in pregnancy, or when swollen and hard from disease ; and from polypi and other tumors.

The coccyx is attached to the sacrum above, and is loose

below, and serves to taper off the spinal column and afford some support to the contents of the pelvis.

The os innominati form the sides of the pelvis, and are attached behind to the sacrum, and in front to each other.

The vagina forms a canal leading from the vulva, or external orifice, to the uterus, or womb, is partly an external and partly an internal organ. It may be considered the excretory duct of the uterus, as along it passes the menstrual flux, mucous secretions, and all other discharges from the womb; and it is composed of such dilatable tissues, that although, in the virgin,

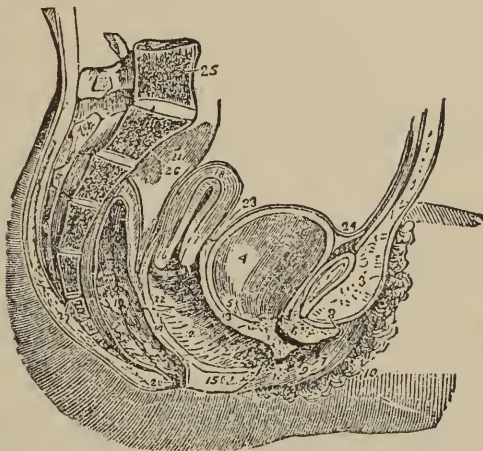


Fig. 1. Shows a verticle section of the internal organs, with the uterus in its natural position.

it is less than an inch in diameter, yet it is capable of giving passage to a fully developed fœtus.

The womb is situated at the termination of the vagina; it is pear-shaped, placed with its smaller end down; it is from an inch and a half to three inches in length; and is divided into fundus, or upper portion, its body, or middle portion and its cervix, or neck, which forms its lower portion and extends partly into the vagina.

The walls of the uterus are about an inch thick, and are composed of its mucous lining, contractile fibres, nerves, blood-vessels, absorbents, and an outer serous covering, composed of an extension or reflection of the peritoneum from the bladder, rectum, etc.

The mean length of the uterus being about two and a half inches, and as it projects near half an inch into the vagina, about two inches must therefore project above the vagina.

It extends from the vagina nearly to the brim of the pelvis (see Fig. 1), shows it situated between the bladder and the

rectum, and has antero-posterior inclinations when the bladder is moderately distended, which brings its axis nearly coincident with that of the superior strait of the pelvis. Supposing the body to be erect, the angle of the uterus with the perpendicular would be about forty-five degrees. These details with regard to the position of the uterus are essential to comprehension of situation and relation of the ovaries and fallopian tubes.

The uterus is held in place by ligaments, certain of which are formed of the folds of the peritoneum. The anterior ligament is reflected from the anterior surface to the bladder; the posterior ligament extends from the posterior surface to the rectum; the round ligaments extend from the upper angle of

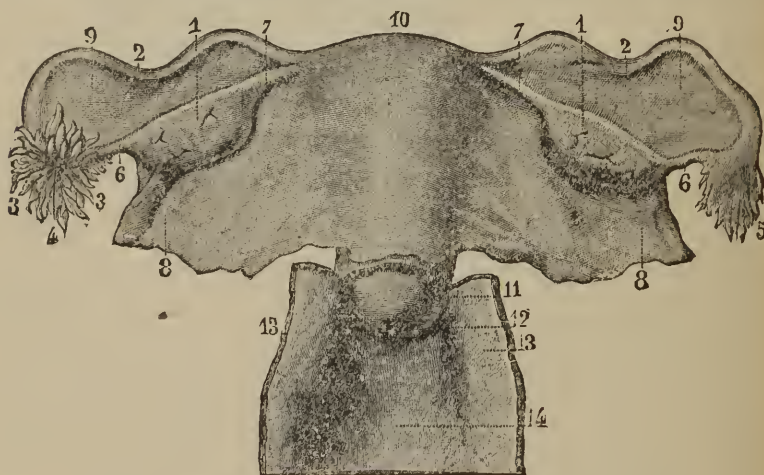


Fig. 2. *Uterus, Fallopian tubes and ovaries; posterior view.* [Suppey.]

1, ovaries; 2, 2, fallopian tubes; 3, 3, fimbriated extremity of the left fallopian tube seen from its concavity; 4, opening of the left tube; 5, fimbriated extremity of the right tube, posterior view; 6, 6, fimbriae which attach the extremity of each tube to the ovary; 7, 7, ligaments of the ovary; 8, 8, 9, 9, broad ligaments; 10, uterus; 11, cervix uteri; 12, os uteri; 13, 13, 14, vagina.

the uterus, on either side, between the folds of the broad ligament and through the inguinal canal symphysis pubis; the broad ligaments, which extend from the sides to the walls of the uterus, to the walls of the pelvis, are the most interesting of all, as they lodge the ovaries of the fallopian tubes.

Laterally, at the free extremities of the tubes, the peritoneum ceases, and there is an actual opening of each fallopian tube, into the peritoneal cavity. Attached to the broad

ligament and projecting upon its posterior surface, is the ovary. This little almond shaped body is connected with the fibrous tissue between the two layers of the ligament, and has no proper peritonéal investment; so that actually each ovary is attached to the uterus by a ligament, lying just beneath the peritoneum, called the ligament of the ovary.

Fig. 2 shows the general arrangement of these parts viewed from behind, giving a general idea of the relations of the different parts, and enabling us to study intelligently their anatomy.

The ovaries are of a whitish color, and their form is ovid and flattened, with the anterior borders, sometimes called the base, attached to the broad ligament.

Each ovary is about one inch and a half in length, half an inch in thickness, and three-quarters of an inch in width at its broadest portion. The outer extremity is somewhat rounded, and is attached to one of the fimbriæ of the fallopian tube. The inner extremity is more pointed and is attached to side of uterus by means of ligament of the ovary.

The weight of each ovary is from sixty to one hundred grains, and these organs are largest in the adult virgin. Its attached border is called the hilum, and at this portion the vessels and nerves penetrate.

In addition to the blood-vessels, the ovary receives nerves from the spermatic plexus of the sympathetic.

The Graffian follicles or vesicles contain the ova, undergo a series of interesting changes, enlarge, approach the surface of the ovary, and finally are ruptured discharging their contents into the fimbriated extremity of the fallopian tube.



Fig. 3.

There projects from each side of the fundus of the uterus a round body called the fallopian tube, (which has been spoken of at some length in this article) which near the uterus is enfolded by the peritoneum, but its outer extremity is free and hangs more in the cavity of the peritoneum (see Fig. 3. 4, 6,) this loose end is fimbriated or fringed, much like the flower of the wild apricot. Now this body is a duct or canal which communicates with the cavity of the uterus; or its free extremity. This canal is large enough to admit the end of one's little finger, but grows narrow as it approaches the uterus, until at its entrance it will not more than admit an ordinary sized pin.

Now during the orgasm or excitement of the menstrual periods, one or more of the little ova, or eggs, in the ovary becomes matured, and the absorbents cut a passage through the investing tissues for its escape; and, under a certain state of excitement, the fallopian tubes, (see Fig. 2. 2,2,) become engorged with blood, so as to put them on a strut which brings their fringed ends precisely in contact with the ovaries (Fig. 2. 1,) and these fringes embrace it like so many little fingers, and for the time hold the mouths of the tube in such nice contact with the ovary, that it serves as an excretory duct to this organ; or may transmit to them through the medium of the uterus, the vital impulse by which the ovum is impregnated, and becomes the *punctum saliens* of a new existence.

But whether the ovum is usually impregnated before entering the fallopian tube, or during its passage along the tube, or after it has reached the uterus, are controverted points.

MENSTRUATION.

Of what does menstruation consist? What are the causes which produce it? What are its uses in the system of the female? There is probably no function of woman which is so little understood by herself, as this.

I am indebted to C. D. Meigs, of Philadelphia, for the

material of this article, for to him is due the credit of demonstrating the causes of this wonderful function, in a clear and reliable manner.

"*Omnes vivum ex ova*," (every living thing comes from an egg or germ) is the universal law of reproduction. Every seed, every egg contains a germ, which, when brought under proper influences, will produce of its own kind. But where do these germs originate? It has been ascertained that each animal, is provided with an organ for the production and throwing off of these cells or germs. In the female this organ is the ovary. The sole physiological function or duty of the ovary, is to mature and deposit its ova or eggs every twenty-eighth day, from the age of fifteen to that of forty-five, or for about thirty years. This function is suspended only during pregnancy and nursing, but sometimes not even then. During the maturation or ripening, and discharging of the ovum into the canal or tube which conveys it into the womb, the generative organs become very much congested looking almost as if inflamed. This congestion at last reaches such a height, that it overflows as it were, and produces a discharge of bloody fluid from the genitalia or birth-place. As soon as the flow commences the heat and aching in the region of the ovaries, and the weight and dragging sensation, diminish and gradually disappear. Thus you will see that menstruation consists merely in the ripening and discharge of the ovum or egg, which, when not impregnated, is washed away by the menstrual fluid or blood, poured out from the vessels on the inner surface of the womb. It will also be seen that a woman may become pregnant only at or near the time of her menses. The marvellous regularity of menstruation has always excited great wonder. But why should it? It is a law of nature, and why should not women obey it? The flow being but the outward visible sign, it is possible that a woman may menstruate regularly without having any show. To prove this, menstruation commences at the age of 14 or 15 in this country. In warmer climates it appears earlier, in colder ones, later.

The first appearance of the menses is generally preceded by the following symptoms: Headache, heaviness, languor pains in the back, loins and down the thighs, and an indisposition to exertion. There is a peculiar dark tint of the countenance, particularly under the eyes, and occasionally a sense of constriction in the throat. The breasts are enlarged and tender, the appetite is fastidious and capricious, and digestion is impaired. These symptoms continue one, two, or three days, and subside as the menses appear. The menses continue three, five or seven days, according to the peculiar constitution of the woman. The quantity discharged varies in different individuals. At about the age of forty-five the final cessation of menstruation takes place, and this period often excites the fears of the females. Sometimes the symptoms are mistaken for those of pregnancy—such as sickness at the stomach, capricious appetite, swelling and pain in the breasts. The change is generally gradual. The discharge may return every two or three weeks, then cease for two or more months, return again for several months as regular as ever, and finally disappear altogether. It is during the menstrual period that the system, especially of young persons, is more susceptible to both mental and physical influences. Very much depends upon the regular and healthy action of the discharge, for to it woman owes her beauty and perfection. Great care should therefore be used to guard against any influences that may tend to derange the menses.

Sudden suppression is always dangerous.

Treatment.

The bowels should be kept open by some mild cathartic, as castor oil or a pill of aloes.

If there is pain and fullness of the head during the discharge, or before it, use the following:

Tincture of aconite leaves,	.	.	2 drachms.
Tincture of belladonna,	.	.	1 drachm.
Tincture of cantharides,	:	.	1 drachm.

Morphia,	. . . . .	3 grains.
Simple syrup,	. . . . .	4 ounces.

One (1) teaspoonful three times a day. If the pain is severe, it may be taken every two hours.

Homœopathic treatment.

It is well for the patient, a few days before the period, to take a warm hip or foot bath twice a day, and at night when retiring to apply cloths wet in warm water to the lower part of the abdomen.

About two weeks before the period, take a dose of gel-seminum every night, and a dose of belladonna in the morning. At the time for the menses, if there is much pain, take these two remedies alternately every two or four hours.

Pulsatilla.—If the patient is melancholy and sad, and inclined to weep; paleness with flashes of heat; loss of appetite, with desire for acids; nausea and vomiting.

Bryonia.—If there is congestion of the head; flushed face, frequent nose bleeding, constipation, palpitation of the heart.

Administration of remedies.

Give a dose, six (6) globules, every morning of either of the above remedies for a week or ten days. If better, discontinue four days, and give sulphur every morning for a week.

DISORDERS OF MENSTRUATION.

Delayed and obstructed menstruation.

When the menses do not appear when naturally expected, we call it delayed or obstructed menstruation. It is however, of great importance to know whether a girl is sufficiently developed to make it necessary for the menses to appear although she may have reached the proper age. As long as the girl has not increased physically, if she has not

become wider across the hips, if her breasts have not become enlarged, and if she experience none of the changes incident to this period, an effort to force nature is positively injurious. She should be required to exercise freely in the open air, retire early to bed, and arise at an early hour in the morning. She should not be allowed to be closely confined at school, if attending. If, however, she is fully developed, and she suffers from time to time from congestions of the head, breast, or abdomen, it will be necessary to interfere.

Symptoms.

Headache, weight, fullness and throbbing in the center of the cranium, pains in the back and loins ; cold feet and hands, sometimes very hot, skin harsh and dry ; slow pulse.

SUPPRESSION OF THE MONTHLY PERIOD (*Amenorrhœa*).

May occasionally take place suddenly from some accidental cause, such as exposure to cold or mental emotion. In other instances the suppression is symptomatic of some other disease, either organic or functional, and can only be remedied by the cure of the primary malady.

Chronic suppression may be either a consequence of the acute, or delicate health ; also from diseases of the ovaries, or womb. May also be caused by an imperforate hymen, in which case it must be cut open by a physician.

Symptoms.

The following are the symptoms generally found in amenorrhœa, with a fully developed body and sexual organs : Headache, fever, hot skin, quick pulse, thirst, weight, fullness and throbbing in the center and back part of the head ; pains in back and loins ; cold feet and hands. Those of spare habit, and nervous temperament, are liable to hysterical fits, and even epilepsy.

Treatment.

When the suppression is caused by some disease in the

system, that disease must be cured before the menses will return.

For sudden suppression, use the warm sitting bath or the foot bath, apply cloths wet in warm water to the lower part of the abdomen, and drink freely of warm water. If the suppression is chronic, and the patient is delicate, in the interval between the courses, use the shower, or the full bath of tepid water, rubbing the body briskly with a coarse towel, especially around the abdomen, loins and genital organs.

As soon as the discharge has ceased, a warm hip bath will generally bring it on. If there is much inflammation of the uterus, give the following :

Tincture of aconite leaves,	. . . . .	2 drachms.
Sweet spirits of nitre,	. . . . .	1 ounce.
Simple syrup,	. . . . .	3 ounces.
Dose, one teaspoonful every two or three hours.		

If the discharge cannot be brought on, wait until the next period. A few days before the term, the bowels should be freely opened, and kept open until the period for the discharge has arrived. The pill of aloes and iron of the United States Dispensatory, is one of the best that can be given. Give from one (1) to three (3) pills daily. If there is no evident reason for the discharge not appearing, such as pregnancy, inflammation of the neck of the womb, and the woman is suffering from suppression, use the following :

Caulophyllin,	. . . . .	1 drachm.
Extract aconite,	. . . . .	8 grains.
Aloes,	. . . . .	10 grains.
Sulphate of iron,	. . . . .	10 grains.

Make into forty (40) pills. Dose, two (2) or three (3) pills taken night and morning.

The remedies should always be taken a few days before the period arrives. If chronic suppression is the result of

any acute disease, the health must first be re-established; otherwise, it would be wrong to force the menses. When this has been done, immediately before the return of the period, a warm hip bath should be taken every night for six nights.

Permanganate of potash made into pills, each containing one (1) or two (2) grains. Begin with a grain three times daily, gradually increase the dose to two (2) grains four times a day. The most striking results have been obtained with the larger dose, a large dose sometimes succeeding admirably after the failure of a small one.

Homœopathic treatment.

Aconite.—When the suppression is caused by fright or cold, with congestion of blood to the head and chest, redness of the face.

Belladonna.—For patients of full and robust habit.

Bryonia.—Headache and giddiness, aggravated by stooping and motion; pain in stomach, sour belchings, constipation, bleeding of the nose.

Pulsatilla.—The most important remedy in this trouble.

Sepia.—Nervous headache, with alternate shuddering and heat; colic, and pains in sides.

Veratrum.—Nervous headache, nausea and vomiting; coldness of the hands and feet, weakness and fainting.

Sulphur.—Headache, principally in back of head; feeling of fullness and weight in head; throbbing and buzzing; pale face, with red spots on cheeks; sour stomach; pressure in abdomen.

Administration of remedies.

Dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and give a teaspoonful every one or two hours, according to the urgency of the symptoms.

PAINFUL, OR DIFFICULT MENSTRUATION (*Dysmenorrhœa*).

In some of its forms presents characters analogous to

those exhibited by amenorrhœa. It may vary from a large amount of discharge to a mere "show." As long as a discharge, however small in amount, is regular in appearance, there is good hope of restoring the functional vigor of the organ.

Scanty menstruation is commonly associated with obesity of figure, and sterility as a consequence of improper ovulation.

The uterus may exhibit scarcely any alteration. In all such instances the diminution and cessation of the menstrual discharge are matters of time and degree, and are thus sharply separated from those in which total disappearance suddenly follows blood-poisoning. In case of gradual loss of function, emmenagogues may be found useful, but bromides and iodides are contra-indicated when the signs are as above described. With them, however, electricity is signally serviceable, but must be frequently applied to secure benefit, the reason for this being, that the remedy acts on a function which only recurs periodically, the ovaries, and not the uterus being the organs implicated.

The tincture of *pulsatilla*, given in half-drachm doses, thrice daily during the interval, is a most excellent remedy in this affection.

In membranous dysmenorrhœa :

Pulv. guiac.,	.	.	.	.	.	1 ounce.
Canada turpentine,	.	.	.	.	.	1 ounce.
Oil of sassafras,	.	.	.	.	.	2 drachms.
Alcohol,	.	.	.	.	.	8 ounces.

Mix. Macerate for seven days and strain. Then add :

Corrosive chloride of mercury, . . . 1 scruple.

Take (20) drops in wine or sweetened water, night and morning.

When painful, the following is highly commended :

Tincture aconite leaves,	. . . . .	2 drachms.
Sweet spirits of nitre,	. . . . .	1 ounce.
Morphia,	. . . . .	3 grains.
Simple syrup,	. . . . .	4 ounces.

Dose, one (1) teaspoonful every half hour until relieved.
Or, Dover's powder, ten (10) or fifteen (15) grains to be given at once, and five (5) grains in a pill, every three or four hours, each pill to be followed by a dose of the following mixture :

Solution of acetate of ammonia,	. . . . .	1 1/2 ounces.
Sweet spirits of nitre,	. . . . .	2 drachms.
Simple syrup,	. . . . .	2 "
Camphor mixture,	. . . . .	4 ounces.
Mix. Dose, one-fourth (1/4) part.		

In the interval of the menses, take active exercise, with a tepid hip bath, three nights in the week, injecting some of the water high up into the vagina. Keep the bowels open with a pill of aloes and myrrh, and take a small teaspoonful of the volatile tincture of guaiacum three times a day in water. On the approach of the period, take the following at night :

Calomel,	. . . . .	3 grains.
Opium,	. . . . .	1 grains.

In the morning a dose of castor oil, and on the appearance of the menses, the Dover's powder and mixture as before. Repeat the treatment, in each interval, until permanently relieved.

EXCESSIVE MENSTRUATION (*Menorrhagia*).

The quantity of the menstrual discharge varies a good deal in different women. Considerable influence is for the most part exerted by climate, constitution, and manner of living. The duration of the discharge and the period of re-

turn are also variable. In some women it continues from four to six days, in others it lasts only a few hours ; from three to six days is however the most usual period. The regularity is, in many, exact to a day, or even an hour ; while in others a variation of several days is a usual occurrence, without the slightest disturbance to the general health resulting therefrom.

Some females are predisposed to uterine hemorrhages, from a relaxed, or flabby state of the texture of the uterus. Frequent child-bearing, abortion, high living, too prolonged and frequent suckling, may induce flooding.

Symptoms.

Exhaustion of the bodily powers ; weakness and pain in the back, extending to the hips, and across the loins ; sallow and sunken features ; headache with throbbing of the temples ; pain in the left side, stomach, and bowels ; sometimes diarrhoea with great nervous debility.

Treatment.

The patient must lie down on a hard bed, and abstain from all stimulating food and drinks. The room should be cool, and she should be lightly covered with bed clothes. Soak the feet in warm water, and if the flowing is excessive, apply cloths, wrung out in vinegar and water, to the lower bowels. The hips must be elevated higher than the head. Only in extreme cases should plugging be resorted to. This may be done by pieces of linen, about four inches square, thrust into the vagina, until it is full, and a bandage applied between the legs. Cold hip baths, and vaginal injections of cold water will be beneficial when the hemorrhage is slight.

Take a teaspoonful, each, of nitre and alum ; mix, divide into six (6) powders, and give a powder every two or four hours.

The tincture of muriate of iron, in doses of fifteen (15) drops, every half hour, or more, according to severity

of symptoms, will be found good in some cases. Give in half ($\frac{1}{2}$) a teacup of water.

Acetate of lead,	. . . . .	10 grains.
Pulverized opium,	. . . . .	6 grains.

Make into ten (10) pills, and take a pill every two hours until the discharge diminishes;

The following will be found very successful :

Oil of cinnamon,	. . . . .	5 drachms.
Oil of erigeron,	. . . . .	2 drachms.
Pulverized gum arabic.	. . . . .	1 drachm.
Water,	. . . . .	4 ounces.

During the intervals of the period the system must be toned up with some preparation of iron. One of the best is as follows :

Precip. carbonate of iron,	. . . . .	6 drachms.
Extract conium,	. . . . .	2 drachms.
Balsam of Peru,	. . . . .	1 drachm.
Oil of cinnamon,	. . . . .	20 drops.
Simple syrup,	. . . . .	8 ounces.
Pulverized gum arabic,	. . . . .	2 drachms.

Dose, two (2) teaspoonfuls, three or four times a day, in water ; shake before using.

Prof. Meigs, of Philadelphia, recommends the following :

Powdered alum,	. . . . .	5 to 20 grains.
Grated nutmeg,	. . . . .	2 grains.

Make into a powder, and give in syrup (made of white sugar boiled down) every hour.

Homœopathic treatment.

Ipecac.—When the discharge is bright red, and the menses return too early.

Belladonna.—When the menses return too soon.

Crocus.—This is an important remedy, indicated when the discharge consists of dark colored clots.

Chamomilla.—When the discharge is dark colored and accompanied by griping.

Nux vomica.—The flow commences with sudden violent gushes, stops for a short time, and begins again.

Calcarea carb.—Good in obstinate cases, where the discharge has continued for a long time.

Secale.—Great flooding, with violent cramp.

Administration of remedies.

Of the selected remedy, dissolve twelve (12) globules, in twelve (12) teaspoonfuls of water, and take a spoonful every half hour, or one or two hours, according to the severity of the symptoms.

OFFENSIVE MENSTRUATION (*Bromo-menorrhæa*).

The odor of the normal catamenia cannot be said to be offensive, although it may be peculiar. Occasionally, however, this odor is extremely offensive.

The local causes may be grouped as follows :

1. Attributable to prolonged retention and decomposition of clots and other *debris*, due either to mechanical obstruction, to the exit of the flow (stenosis or flexion), or to deficient expulsive action on the part of the uterus, often accompanied in either case by a scanty flow.

2. To the character of the discharges in certain morbid conditions and growths within the body of the uterus—for example, in subinvolution, particularly of the placental site—after abortions or confinements; papillomatous and other diseases of the womb; in polypi, fibroids, sarcomata, epitheliomata, and other malignant growths of the interior of the uterus, usually where the discharge is not abundant, for if there be hemorrhage enough to keep the debris washed

away, decomposition may be prevented, except where a strong offensive smell, comes on only on the subsidence of the flow. It is also an occasional, though rare, sequel of gonorrhœa.

The syrup of the iodide of iron yields the best results in chlorotic women ; it is often combined with *nux vomica*. As adjuvants, and having more direct reference to the odor, administer, unless otherwise contra-indicated, boracic acid, the sulpho-carbolates, salicin, quinine and iodine ; although the results from such remedies are not always strikingly good. It is obvious that when there is a mechanical obstacle to the escape of the menses, the remedy consists in overcoming it by appropriate measures. When there are grounds for believing the offensiveness to be due to retention of the menses from defective expulsion, quinine, borax, ergot, viburnum, and such like may be given.

As regards local measures other than operative procedures (such as erosion, removal of morbid growths, and dilitation) injections and irrigations with deoderising materials are very useful. Solutions of boracic acid, sulphurous acid gas, carbolic acid, iodine (one (1) fluid drachm of tincture of iodine to five (5) fluid ounces of water, or stronger) and such like may be employed.

In virgins, in whom injections or similar procedures are inadmissible, and indeed in all cases, the offensive odor may be to some extent concealed and annoyance lessened by the use of charcoal in the diaper. Pieces of animal charcoal may be enfolded in the diaper, or may be placed in a muslin bag, and applied in the usual manner.

Iodoform mixed with eucalyptus oil may be useful in certain cases, *e. g.*, in morbid growths ; and when applied to the summit of the vagina.

Pledgets of cotton-wool soaked in glycerine with boracic acid (or boro-glyceride ?) are highly efficacious, they excite a watery flux, but have a decided sweetening influence. Intra-uterine medication is only to be undertaken with every precaution.

CESSATION OF THE MENSES (*Change of life, menopause*).

The cessation of the menses being a natural process, and not a disease in itself, we may safely leave nature to accomplish this salutary change in the system, and should carefully avoid interfering, unless symptoms occur to authorize the employment of remedial measures.

Most physicians in general practice have met with women, between forty and fifty years of age, who have suffered from two to four years with peculiar disturbances of the nervous system co-incident with the menopause, namely: 'frequent attacks of flushings, or heats,' starting from various parts, as the face, etc., thence spreading over the greater part of the body. Sometimes, although the patient feels deeply flushed, the skin remains natural. The sensation of heat may be so urgent that the patient opens her clothes or removes the greater part of the bed covering, and even throws open the window in the coldest weather.

These heats may last a few minutes, an hour, or more, and may be repeated a number of times a day. They are generally followed by perspiration, often profuse; at other times the skin remains dry, and they are accompanied by throbbing throughout the whole body, followed by prostration. In many cases palpitation or 'flutterings at the heart,' occur on the slightest excitement, or even without apparent cause.

The remedy which gives the best results, in our practice, is arsenic, Fowler's solution, three (3) to five (5) drops, three or four times a day, used with the customary precautions concerning its administration, and continued for some time. The patients either being relieved entirely, or severity of the attacks materially lessened.

Laxatives and purgatives are useful in a certain class of cases, and injurious in another. Extremely useful where there is a tendency at the climacteric period to plethora, to become stout, and the patients suffer from palpitation and a feeling of pressure in the head, etc. In those cases let the patient take a saline laxative daily, for a few days, at the

time corresponding to that at which menstruation usually occurred.

Keep the bowels regulated with the following :

Mercurial pill,	. . . . .	1 grain.
Ipecac powder,	. . . . .	$\frac{1}{2}$ "
Compound rhubarb pill,	. . . . .	3 grains.

Mix for a pill to be taken every night.

If there are nervous symptoms prominent, give :

Valerianate of zinc,	. . . . .	8 grains.
Tincture of valerian,	. . . . .	2 drachms.
Orange flower water,	. . . . .	$3\frac{1}{2}$ ounces.
Syrup of red poppies,	. . . . .	2 drachms.
Mix.	Dose, a tablespoonful every six hours.	

Homœopathic treatment.

The remedies most called for are pulsatilla, lachesis, bryonia, cocculus, ignatia, and sulphur. Generally the treatment may be commenced with pulsatilla and lachesis. Give one (1) dose (six (6) globules) of pulsatilla for four days ; then omit all medicines for four days ; then give lachesis in the same manner. If the symptoms abate do not give any more medicine, so long as improvement continues. Bryonia is to be given when there is a tendency of blood to the head, dizziness, etc. Ignatia when the patient is nervous and irritable.

WHITES (*Fluor albus, catarrh of the vagina*).

The mucus membrane of the vagina and womb, in the healthy condition of the parts, is always kept moist by its own secretion ; from various causes, this mucous fluid, which is intended to lubricate the parts, is often secreted in too great abundance, and runs from the vagina. The discharge far from being always white, presents various shades of color. At first transparent, glutinous, resembling the white of eggs,

not very copious ; but in the more protracted cases, becomes thin, watery, or slightly milky, opaque, and is freely discharged. Is not accompanied with pain, except occasionally in the loins, when the patient is fatigued ; but never continues long without producing more or less derangement of the general health.

Without the greatest attention to cleanliness, irritation or excoriation of the adjacent parts is induced. When it exists to this extent, the parts are often much relaxed ; and sometimes there is considerable prolapsus, or falling down of the womb ; but there is neither, pain, heat, nor swelling, and the discharge is without smell.

Treatment.

In the acute form of the disease, the patient should confine herself to low diet, and keep her bowels open with epsom salts, or any other cooling saline purgative. Have in view the constitutional condition of the patient, raising the general standard of health, by the administration of tonics, and the enforcement of a suitable diet and regimen. In young women of relaxed habit of body, it may be enough to prescribe quinine and iron, or arsenic, and the daily use of a cold sponge bath ; and in infantile leucorrhœa, codliver oil and iodide of potassium.

Local treatment becomes an absolute necessity. Sometimes it is enough to pay strict attention to cleanliness, washing the surfaces with a soft sponge, or syringing the vaginal canal with tepid water ; and even when astringent applications are to be made, the surface should first be subjected to a detergent stream of water. In marked congestion of the uterus, it is best to make the injections with hot water, and to keep the stream passing through the vagina for at least five minutes at a time, immediate relaxation of the blood vessels being followed by contraction of their walls, which favors the cessation of the discharge.

The astringents most serviceable for checking vulvar and vaginal leucorrhœa are alum, aluminated iron, acet-

ate of lead, sulphate of copper, sulphate of zinc, borax, and infusions of oak bark, matico, and other vegetables charged with tannin. They are best applied by means of a douche, through a long india-rubber tube with a stop-cock for regulating the flow, fitted close to the vaginal nozzle, and the other extremity opening into a wide receptacle, or fitted to a filler into which the fluid is poured. Where there is a difficulty in using the injection, and where it is desirable to keep up a more prolonged application of the medicament, it may be introduced into the vagina in the form of pessaries, made with cacao butter or with glycerine gelatine.

Where there is simply a leucorrhœal discharge, the patient being otherwise in good health, let one fluid ounce of the extract of Oregon grape root be added to three (3) ounces of the syrup of tolu, and the patient take a teaspoonful three times a day, before meals. No local application of any kind need be used. The following combination has given me excellent results in all cases of leucorrhœa, amenorrhœa, dysmenorrhœa, and as a general uterine tonic and female regulator :

Fluid extract of Oregon grape root,	. . .	1 ounce.
Fluid extract of black haw,	. . .	½ ounce.
Tincture of pulsatilla,	. . .	1 drachms.
Syrup of tolu, sufficient to make	. . .	4 ounces.

Take one (1) teaspoonful three times a day before meals in water.

Homœopathic treatment.

Pulsatilla.—Is best adapted to females of a mild disposition, with soft muscular system, light hair and pale skin.

Sepia.—Best suited to sensitive and delicate females.

Alumina.—Leucorrhœa after the menses; profuse discharge of mucus during the day, stiffening the linen.

Calcarea carb.—Leucorrhœa before menses, with itching.

Nitric acid.—For fetid, brownish, greenish or flesh colored leucorrhœa.

Mercurius.—Purulent, burning leucorrhœa.

Cocculus.—Watery, bloody leucorrhœa during pregnancy.

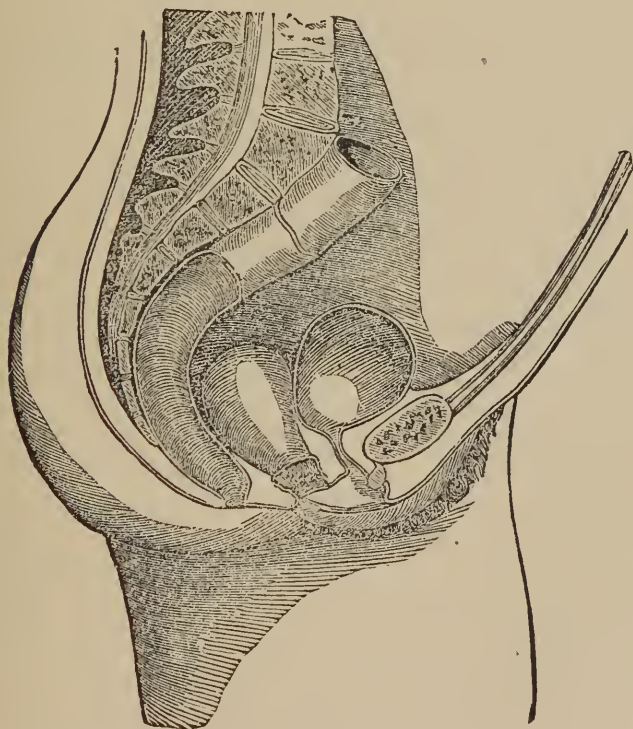
Sulphur.—In stubborn cases ; excoriating leucorrhœa, preceded by colic.

Administration of remedies.

Of the selected remedy give six (6) pills, morning and evening, for five days.

FALLING OF THE WOMB (*Prolapsus uteri*).

Is a descent of the womb below the position in the pelvis which it naturally occupies. When this descent only brings the uterus sufficiently low to allow the neck to rest upon the peritoneum, or against the vulva, it is said to be incomplete ; when it descends through the vulva, and becomes external, it is called complete prolapsus.



The friction of the clothes occasions very painful ulceration on the outside of the vagina, if the prolapsus be recent. When the parts have been long down, they adapt themselves to their new situation.

It will be found that, in every case of prolapsus uteri, the vagina, or bladder, or rectum, or muscles lining the pelvis, or filling up its outlet, are debilitated, or lacerated, and therefore the relaxation of the peritoneum and its production (the ligaments of the uterus) are the effects of prolapsus and not its cause. Cases of prolapsus in virgins, it may be alleged furnish an objection to this reasoning. Such cases may be easily explained. The accident in these cases is the effect of a sudden exertion in moving the body, at a time when the usual supports of the uterus are relaxed as during menstruation.

Treatment.

Rest in the horizontal position as long as possible ; use of the vaginal injections of the vegetable and metallic astringents.

Though rest in the horizontal position will give temporary relief, yet it can never effect a cure without the appropriate means to give strength and tone to the vagina, the perineal muscles, etc.

Astringent injections have been much used. That they give temporary relief, cannot be denied ; but that permanent benefit should be derived from their use, I think may be doubted.

Most females troubled with falling of the womb, think they should wear some kind of a support to the abdomen. These supporters, do a great amount of harm ; they increase the pressure on the bowels, forcing down, more and more, the womb and its appendages. Raise up the womb to its natural position by an instrument called a pessary. This is a ring, or hollow, cup-shaped globe, made of gold, silver, ivory, wood or gutta-percha, and placed in the vagina, thus supporting the womb. The cold hip bath should be used

once a day, at the same time injecting cold water into the vagina, with a syringe. Lie down as much as possible, and avoid becoming fatigued. Do not wear corsets nor heavy skirts, but allow the clothes to be loose. These things must be attended to closely.

Homœopathic treatment.

Belladonna.—When there is a feeling of pressure in the abdomen as if the contents would fall out.

Sepia.—Menstruation too early, too feeble, or suppressed; frequent desire to urinate; itching, burning leucorrhœa, with a discharge of yellowish, reddish, or fetid fluid.

Nux vomica.—Heat and weight in the womb and vagina, dragging, aching pain in the back, in the abdomen, and down the thighs.

Calcarea carb.—Excellent for weak muscular system, or of scrofulous habit.

Commence the treatment with a dose of *nux vomica* every four hours, and continue that for one week; omit the next week, but the week following take a dose of *sepia*, night and morning.

RETROVERSION OF THE UTERUS.

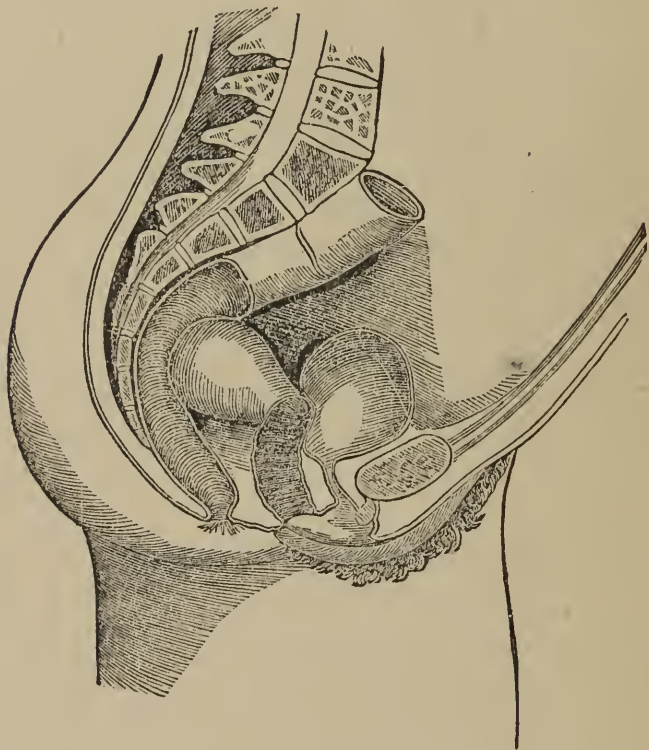
In the true *retroversio*, the *os uteri* is inclined towards the pubes, while its fundus is approximated to the sacrum, and descends so far between the rectum and vagina, that it occasions a tumor at the posterior side of the latter tube. Thus situated it may render the passage of the feces exceedingly difficult, or impossible. As it necessarily displaces the bladder and urethra, retention of urine always attends the case.

Symptoms.

Weight, tension, and bearing down in region of uterus and rectum, with dragging at the loins and in the region of the uterine ligaments, are very common. Pains often stretch down one or both of the lower extremities. In general all the symptoms, local and constitutional, are aggravated, more

or less, by exercise in the erect position; and they are more particularly liable to be increased in their intensity when the uterus becomes periodically congested and heavier, at the recurrence of the menstrual period.

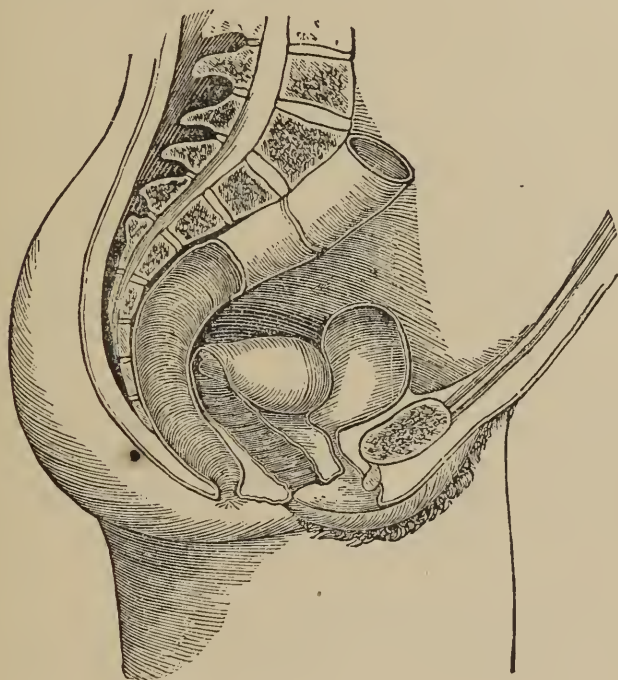
The menstrual function, in some cases, is not altered at all, continuing regular as to time, duration, and quantity, but in other cases it may be affected most oppositely and variously.



ANTEVERSION OF THE UTERUS.

The symptoms of this displacement are almost entirely mechanical, and similar to those produced by retroversion, though not in general so well marked. If the displacement comes on gradually, the symptoms will be so slight that it will be almost impossible to determine the precise time of their origin. A sense of fullness in the pelvis, of weight and bearing down (low down) behind the pubis, accompanied with weight and pain in the perineum and rectum, frequent desire

to pass water, but great difficulty in doing so. Where the displacement is suddenly produced, as by a fall, severe straining, etc., the symptoms will be very marked, the pressure of the uterus against the urethra producing partial, or in some cases, complete retention of urine.



SIGNS OF PREGNANCY.

General symptoms.

When pregnancy has taken place, the face generally becomes pale, the under part of the under eye-lid is of a leaden hue, the features become sharper, and not unfrequently the person becomes thinner; the temper is often more than usually irritable; sickness in the morning and after meals, feverishness, indigestion, heartburn, languor during the day, disturbed sleep and disagreeable dreams at night; a sense

of bearing down ; an irritation about the bladder and the seat ; unaccustomed flow of urine, are not uncommon symptoms in the early stage.

The navel is usually drawn inwards and downwards during the first two months ; in the third it is natural ; in the fourth it is not so hollow as before conception ; in the fifth and sixth it is almost level with the surrounding surface ; in the latter part of the sixth and seventh month it is quite so ; while toward the latter month of gestation, it projects considerably. These symptoms may be considered a decisive sign of pregnancy.

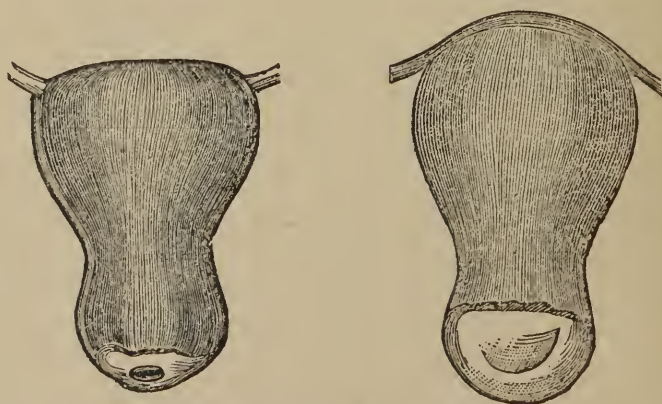
Ceasing to be unwell is one of the most common and generally an early but by no means a certain sign. If regular up to the time of marriage, it is a good presumptive evidence.

Morning sickness.

This distressing affection occurs during the earlier months, almost immediately after conception ; usually its appearance is in two or three weeks after. It arises from sympathy with the newly established action of the womb.

Enlargement of the abdomen.

At an early period the abdomen usually becomes flatter, about the third month the enlargement is perceptible.



View of the womb before and after parturition.

Quickening.

The first sensation which proves to the mother the vitality of her child. The feeling is peculiar and sudden. The sensation is occasioned by the womb rising from the pelvis, where the motion of the child could not be felt, to a part that is more sensible. Quickening usually takes place about the fourth month or eighteenth week ; but in some cases it occurs as early as the third month, and as late as the fifth.

Duration of pregnancy and mode of reckoning.

The duration seldom exceeds forty weeks or nine calendar months, although it sometimes continues forty-three weeks, and sometimes not more than thirty-seven weeks, without in either case diminishing or adding to the size of the child or the perfection of its formation.

The usual mode is to calculate from the last time of being unwell, as impregnation generally takes place within fifteen days, or perhaps more often within a week after. Some calculate with great correctness from the period of quickening, allowing four months for the past time.

The dress should be suited to the season, so as to avoid taking cold. Clothing to form, so that it does not interfere with the functions of those important organs which are destined for the birth and nourishment of the infant. Pressure upon these organs during pregnancy development is a direct contravention of nature. Continual pressure on the womb is liable to produce premature labor. To tight lacing may be attributed the difficulty many women of the present day experience in suckling their children, from unnatural pressure on the breasts ; from this, also, sometimes result dangerous induration, cancer and other affections of the breast. Garters too tightly bound are injurious ; the pressure exercised upon the blood vessels encourages the development of varicose veins.

Diet.

The greatest simplicity should regulate the diet. Much

depends upon the quality of the food. Nothing should be taken that is not nutritive, and everything possessing medicinal property avoided. Coffee and strong tea should be abstained from. Wine, liquors, beer, and other stimulating beverages are injurious.

Employment of the mind, and habits during pregnancy.

An easy cheerfulness of temper is essentially useful in promoting the well-being of the unborn infant. Many instances have been met with in which the impression on the mind of the mother during pregnancy, has influenced the mental organism of the child. This shows how essential it is for females to keep their minds well employed, and to avoid all dissipation. Nothing can tell more effectually on the future mental and corporeal health of the unborn infant than physical indolence, followed by the late hours and other practises of fashionable life.

Influence of external objects upon the unborn infant.

The influence of any unpleasant or unsightly object upon the mother, and the transmission of the effect upon the offspring, evinced in many, in various mental or physical peculiarities after birth, is a theory as old as tradition. Without entering upon the various arguments brought forward for and against, we would advise ladies to keep as much as possible out of the way of such objects.

Mental emotion.

Despondency of mind, and uneasiness about the future, are not infrequent symptoms during pregnancy. Some whose spirits at other times are generally good, suffer much during this period; in others we find the same feelings and excessive lowness of spirits during nursing.

False pains.

Frequently for some weeks or months previous to delivery, the woman is annoyed with what are called "false pains."

These closely resemble true labor pains, and very often cause the patient needless alarm. They may be known by the fact that they are irregular in returning, and usually confined to the muscles of the back and abdomen, and shift from the back to the sides.

Treatment.

If the bowels are constipated, give the following injection :

Warm water,	. . . . .	1 pint.
Salt,	. . . . .	2 teaspoonfuls.
Common molasses,	. . . . .	2 tablespoonfuls.

After the bowels have been opened, give a small teaspoonful of paregoric, and repeat every two hours, unless sooner relieved.

Homœopathic treatment.

Bryonia.—When the pain is in the abdomen and loins, of a dragging character.

Pulsatilla.—When there is a feeling of stiffness or lameness.

Nux vomica.—When there is a pain as if from a bruise in the region of the bladder.

Aconite.—Especially in women who are full blooded. Belladonna in alternation with aconite.

Administration of remedies.

Of the remedy selected, dissolve twelve (12) globules in twelve teaspoonfuls of water, and give a teaspoonful every half hour, hour, two, or three hours, according to the urgency of the symptoms.

Preparation of the breasts.

The breasts of a pregnant women should be carefully guarded from pressure. If the nipple is not sufficiently

drawn out so as to be easily grasped by the child, it may be done with a common breast pump, and after the pump is removed, place around the nipple a ring of beeswax, or a nipple shield, or each nipple should be wound with a bit of woolen thread or yarn, two or three times around the base, and tied moderately tight, but not so tight as to interfere with the circulation of the blood.

The nipples are liable to become cracked and inflamed, and this happens especially after the the child begins to nurse, therefore for several weeks previous to delivery, the breasts should be frequently bathed in cold water, and rubbed with coarse towels. Or using a decoction of green tea, or a decoction of oak bark, or pomegranate. Should there be tenderness or soreness, bathe the nipples and breasts frequently in a weak solution of arnica.

Symptoms preceding labor.

Generally for some days (it may be two, four, six, eight, ten, or twenty days, or only a few hours,) previous there are often present certain premonitory signs of its approach known to women who have borne children.

Restlessness, particularly at night, is frequent for weeks, and is not unfavorable.

Subsidence of the womb and abdomen is usually viewed in a favorable light. The female feels as if she carried the child lower than formerly.

Glairy mucous secretion, sometimes streaked with blood, occasionally occurs days before the active symptoms of labor, and render the parts moister than usual ;

Irritability of the bladder and irritation and griping of the bowels, are present as symptoms of approaching labor, and demand their frequent relief. Pains in the back and loins, commonly known as bearing down pains, may occur at this time.

The movements of the child become stronger, more active, and are felt lower down ; there are also pain and weight in the loins. At this time it will be well to send for the nurse.

Chamber of accouchment.

The bed should be so placed that the room may be well ventilated, without its being in a draught. The bed should not be against the wall, but placed so that assistance could be afforded on either side if required.

It will be advisable to place the patient on a mattress, and over it should be put a piece of oil cloth or oiled silk, and above this, the ordinary binding blanket and a clean sheet in the common manner; another in the form of a roller should be applied across the bed, leaving the ends folded in at the sides; a coarse blanket, folded within a sheet in the form of a table napkin, should be laid immediately underneath the patient, so as to be easily removed after delivery; the upper sheet, blanket, etc., are put on as usual.

The dress should be as slight as possible, so as not to overheat the patient, and her night-dress should be tucked up under her arms, so as not to become soiled.

During the violent pains of the last stage, she may be allowed to pull on a sheet tied to the bedpost. There should be conveniently at hand, sharp sissors, and two pieces of strong cord for cutting, and tying the cord of the child.

Labor pains.

The pains of labor are peculiar, being of a grinding or cutting character. During the first stage of labor, the water is generally discharged.

The second stage of labor is the period between the discharge of water and birth of child. After first stage, the female is generally free from pain for a time. The pains of the second stage are of forcing down character.

Delivery.

The most violent, cutting pains occur just before delivery and are of short duration, but of such a nature that although they are very painful, they rather strengthen the patient, by arousing her energies to the utmost. The woman should be encouraged by kind consoling words. When the child

is born, it should be removed five or six inches from the mother, and the cord should be tied. The first ligature should be tied about two inches from the child's navel, and the other four inches, each secured by a double knot; after having secured the cord, it should be cut with the sissors between the ligatures. One thing, however, should be observed before the cord is tied, that is : whether the child breathes or cries. If the child shows no sign of life, the mouth should be opened, which relieves it of the collection of mucous ; if, however, this is not effectual, the cord should be tied and cut, and the child placed in a warm bath. If after a few minutes this plan does not succeed, it should be taken from the bath, wiped dry and placed on a flannel blanket, and artificial breathing attempted, which may be done as follows : The thumb and forefinger should be placed upon the nostrils so as to close them, then place your mouth to that of the child, and blow into the lungs ; the breast should be pressed so as to expel the air thus introduced. This process should be continued until there is no possible hope of recovering the child. If, however, life shows itself slowly, the child may be rubbed with alcohol or whiskey diluted with warm water. Sometimes dashing cold water in the face or chest of the child will arouse it. After the delivery of the child the after-birth or placenta is expelled. Strong pulling should not be attempted to remove the after-birth, as there is danger of turning the womb inside out ; generally a few pains will suffice to expel it.

Treatment after delivery.

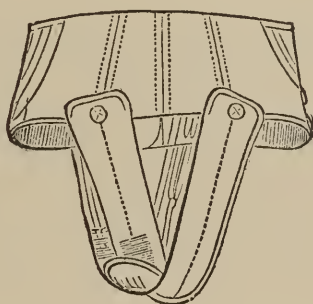
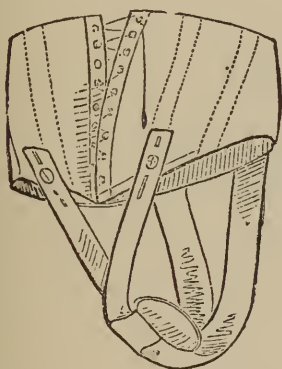
A bandage should be placed around the body of the woman, sufficiently tight to give support to the relaxed abdomen, her garments should be changed if soiled, and she should then be placed in a comfortable position, in a darkened room, and should not be disturbed by her friends. Cloths should be loosely laid over the private parts, to receive the discharges, so that they may not soil her garments.

The accompanying cut shows a very good plan for these

bandages, to be used when the patient gets up to go about her duties. Can be made at home.

Dressing the navel.

Make a hole large enough to admit the cord, in the centre of a piece of muslin or linen about four inches square; pull the navel through this, leaving the cloth lying upon the child's belly, then apply a bandage around the body of the child, confining the cord to the belly.



Light, temperature and ventilation.

The room of the patient after delivery, for the first two or three days should be darkened, and after this time the light freely admitted. Ventilation should be carefully attended to, and fresh air admitted, being careful, however, not to expose the patient to a draft.

After pains.

After the expulsion of the child and after-birth, the contractions of the womb still continue with more or less force causing considerable suffering. They generally commence half an hour after delivery, and close within one or two days although they may continue longer. They serve to diminish the size of the womb and expel its contents.

The following may be given :

Tinct. of aconite, . . . 30 drops. .

Camphor water,	. . . . .	1 ounce.
Laudanum,	. . . . .	1 drachm.
Simple syrup,	. . . . .	1 ounce.

Dose, one (1) teaspoonful in a wineglassful of sweetened water, every two hours.

The application over the abdomen of a fomentation of equal parts of hops and tansy, with a little whiskey or other spirits, will be found beneficial. The application should be renewed several times a day.

Homœopathic treatment.

Chamomilla.—May be given, when the patient feels nervous and excitable, and follow it in about an hour with *nuxvomica*. Several doses of each may be given if necessary.

Coffea and aconite.—May be given in alternation when the pains are intense.

Secale.—Suitable for persons who have borne many children.

FLOODING.

By flooding we here understand those sudden and copious discharges of blood from the womb, which take place soon after the birth of the child. It may occur under two different circumstances, either the after-birth remains in the womb, and is the cause of the bleeding, or the after-birth has been expelled, and the flooding depends on want of proper contraction in the womb, to close up the open mouths of its vessels.

When the after-birth remains in the womb, remove the after-birth. This must not be attempted without due consideration. When the woman has been reduced by the loss of blood to a very dangerous state, it would be improper to remove the clots of blood in genital parts, or disturb patient in any way, lest bleeding return. When the patient has rallied under use of small quantities of cordials, or when flooding has not been extremely copious, then an effort may be

made to remove the after-birth. This is to be done by very gently pulling the navel string, or by rubbing the lower part of the belly with the hand ; or by pouring cold water on the belly ; or by giving the ergot, three (3) or four (4) teaspoonfuls of the tincture, or half ($\frac{1}{2}$) a drachm of the powdered ergot, may be administered every twenty minutes, during one hour, until the desired effect is produced. Should these remedies fail, a silk pocket handkerchief should be passed into the vagina, and gradually pushed up against the womb, until the genital parts are completely filled ; this done, medical assistance must be immediately sought.

It may occur, however, even when the after-birth has been entirely expelled. Here we must endeavour to make the womb contract, by rubbing the lower part of the belly smartly with the hand ; by applying very cold cloths over the same part ; or by placing a firm pad over womb, and then binding it round the body with a bandage, as tightly as the woman can bear it with comfort. The ergot must be given in the doses which we have just mentioned.

In some cases the flooding is internal ; that is, the blood continues to be discharged into the hollow of the womb, where it collects in large quantities, and does not find its way out through the genital parts. This is a very dangerous form, because, as there is no external appearance of blood, it might easily be supposed that the woman was not suffering. The existence of internal flooding may be suspected when the womb can be distinctly felt rising for some height at the bottom of the belly ; and when, at the same time, the patient complains of ringing in the ears, giddiness, and an inclination to vomit. If the face now becomes suddenly pale, the pulse sink, the skin become cold, and the woman frequently faint, no time is to be lost ; the means before described are to be employed, and should they fail, the hand should be passed up into the womb, in order to remove the clots of blood, and excite the womb to contract upon it.

As a general precaution during the treatment of flooding, we should mention that the patient should be kept perfectly

quiet, in a cool room, and that she should never be suddenly raised from the lying posture, or be permitted to make any bodily exertion whatever.

The management of the patient, after flooding has ceased requires very great care and caution. When the loss of blood has been excessive, the woman is reduced to the lowest state ; complains of a constant feeling of sinking, and is extremely restless and depressed in spirits. Notwithstanding her desire to change posture, she must be kept at rest ; forty (40) drops of laudanum, or two (2) grains of opium, are to be given, and, if necessary, repeated in the course of an hour. When a little sleep has thus been procured, some light nourishment may be allowed, such as beef tea or jelly, given in small quantities and frequently repeated ; and when the stomach begins to recover itself, the diet may be cautiously improved. Should the bowels be confined the following draught will be found useful

Rhubarb,	. . . . .	10 grains.
Sulphate of potash,	. . . . .	$\frac{1}{2}$ drachm.
Peppermint water,	. . . . .	10 drachms.

Make a draught ; to be repeated in four hours, if necessary.

Diarrhœa, or looseness of the bowels, may be checked by the chalk mixture, with opium, or any other mild astringent.

One of the most frequent and distressing effects of severe flooding is headache, which often lasts for several weeks, in spite of our efforts to relieve it. The headache, in this instance, depends upon loss of blood, and should never be treated by leeches. Mild nourishment, evaporating lotions, (spirit of sulphuric ether, one (1) ounce ; water, one ounce ; mix.) and Fowler's solution of arsenic, (six (6) drops thrice a day,) are the means which we have found most serviceable in this affection.

The following pills may be taken :

Acetate of lead,	2 grains.
Extract of poppies,	2 grains.

Mix for a pill, and repeat every three or four hours ; at same time the patient should drink vinegar and water.

Homœopathic treatment.

Belladonna.—When there are bearing down pains, as if everything would fall out at the private parts.

Chamomilla.—When her limbs are cold, and there are pains similar to those of labor.

China.—May be given in alternation with ipecac, when there is giddiness and loss of consciousness, fainting, paleness of the face, cutting pains through the abdomen. This will sometimes answer for the worst cases.

Pulsatilla.—When the discharge is clotted, and appears at intervals, ceases and reappears ; may be followed by crocus and sabina.

Duration of confinement.

The woman should remain in bed six to ten days or more after delivery ; this, however, depends upon circumstances.

Diet and regimen during confinement.

By regulating the diet, many serious accidents may be avoided. It may be left in a great measure to the desires of the patient. Nothing, however, should be taken of a stimulating nature. It is important also that the woman should keep clean ; such parts of the person as require washing, should be cleansed in warm water.

Wounds of the perineum should be immediately and completely closed. It is very important to remove the discharges from uterus and vagina, may be effected by abundant hot vaginal injections (three or four pints ; temperature 110 to 115 deg.) commenced immediately after delivery and repeated twice a day at least. They should contain a disinfectant.

Lochia.

After the delivery of the after-birth, there is a discharge of blood which continues for several days; this discharge takes place from the mouths of the vessels in the womb exposed by the separation of the after-birth; for the first three or four days, it is of a red color, and then watery; in the course of six or seven days it becomes thicker, and yellow. In some women it ceases in a few days, and in others it continues for several weeks. The suppression of this discharge is attended with considerable danger.

Suppression of lochia. Treatment.

The bowels should be opened by a gentle cathartic as castor oil or epsom salts. If there are symptoms of fever, apply warm fomentations of hops and tansy to the abdomen; and a mixture composed of two parts of tincture of black cohosh, and one part of tincture of aconite root. Take (8) eight drops in a teaspoonful of water for a dose, and repeat every hour or two.

Homœopathic treatment.

Bryonia.—May be given when there is fullness and heaviness of the head. If there is high fever with congestion of the head, and delirium, give aconite and belladonna.

Pulsatilla.—May be given when the suppression is caused by mental emotions, or cold.

Coffea and chamomilla.—May be given in alternation if the patient is excited, restless and nervous, and there is diarrhœa and colic. Cloths wet with warm water should be placed over the abdomen, and warm hip and foot baths should also be taken.

Excessive, or protracted lochia.

When the lochia is excessive in amount, or continues too long, it is apt to weaken the patient.

An infusion of white oak bark, geranium and witch-hazel bark may be used; the patient drinking freely of it. A mix-

ture of caulophyllin and geranium, each, one (1) scruple, may be given in two (2) grain doses every hour. Bathe the parts frequently with cool water.

Homœopathic treatment.

Crocus.—If the discharge is dark colored, black and sticky, with a feeling in the abdomen as of something alive.

China and ipecac.—May be given in alternation if the discharge takes place in paroxysms, with dizziness, and nausea.

Silicea.—When the lochia appear each time that the infant is put to the breast.

Milk fever.

About the third day after confinement, the breasts become distended with milk, at the same time the patient experiences chill, followed by considerable fever and headache. The fever may generally be prevented by putting the child to the breast as soon as possible. If, from any cause, the fever increases, the bowels may be opened with seidlitz powder. Apply to breasts an ointment composed of equal parts of lard, tinct. arnica and camphor; apply warm and cover with cotton.

Homœopathic treatment.

Aconite.—If there is much fever, breasts hard and knotted.

Bryonia.—When the symptoms have been partially relieved by aconite, or if the breasts are swollen with milk.

Belladonna.—May be given after, or in alternation with aconite or bryonia, if the head symptoms are violent. If the breasts are very tender to the touch, and the patient is restless and excited, give coffea and chamomilla in alternation.

Suppression of the milk.

The secretion of the milk may be suddenly suppressed from various causes.

Homœopathic treatment.

Pulsatilla.—This remedy will generally be found sufficient to restore the flow of milk, particularly when the suppression is caused by cold.

Administration of remedies.

Of the selected remedy dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and take two (2) teaspoonfuls, every two or four hours.

Excessive secretion of milk. It sometimes happens that the secretion of milk is too abundant, causing distension of the breasts, and sometimes inflammation.

Homœopathic treatment.

Calcarea carb. or phosphorus.—Will generally afford relief.

Sore nipples.

This is a frequent and annoying complaint and may be generally prevented, if proper care of the breasts is taken before confinement; in some cases, however, the slightest cause will produce soreness. Frequent bathing in cold water, either pure, or with a few drops of arnica tincture. This should be used after each time the child has sucked. Or a nipple shield may be worn. If there is considerable inflammation, apply a poultice of elm bark, or elm and hops. Sometimes a solution of four (4) or five (5) grains of nitrate of silver to an ounce of water, may be used with advantage. After the severe inflammation has subsided, use the following:

Mutton tallow,	. . . . .	1/2 ounce.
Balsam of Peru,	. . . . .	1/2 drachm.
Glycerine,	. . . . .	1/2 drachm.
Honey,	. . . . .	1/2 drachm.

Melt the tallow, strain, and then mix in the other ingredients. Apply to the nipples four or five times a day, or the

following washes : Dissolve either alum, borax, sulphate of zinc, or copper, in rose water, in the proportion of one (1) grain to the ounce, and apply to the nipple. A solution of tannic acid will be found beneficial sometimes. The following is an excellent application :

Glycerine,	.	.	.	.	.	.	.	1 drachm.
Tannin.	.	.	.	.	.	.	.	1 drachm.
Mix.								

Homœopathic treatment.

Powdered gum arabic to be sprinkled on the sore nipple after each nursing, or the tincture of benzoin, applied with a camel's hair pencil. Borax dissolved in mucilage of slippery elm is an excellent wash.

Internal remedies as follows : Chamomilla may be given when the nipples are swollen and inflamed. If this does not relieve, give the following remedies in the order stated, a dose each day for a week : nux vomica, mercury, sulphur, silicea, lycopodium, graphites, sepia, calcarea carb. The chamomilla may be given every four or six hours, six (6) globules at a time.

Broken breast (Mastitis).

Inflammation of the breast, is frequently found among nursing women. It is generally caused by cold, or permitting the breasts to become distended with milk, pressure on the breasts, mechanical injuries, etc.

Symptoms.

A chill followed by more or less fever ; slight, darting pains in the breast increased by pressure. Sometimes the pain extends to the armpit ; the breast swells, becomes hard, knotted, and uneven ; the skin assumes a dark hue, and matter forms ; the patient becomes weak, irritable, and emaciated. It is very obstinate.

The breasts should be well emptied, either by the child

or by a breast pump. May apply the following frequently :

Tincture of belladonna,	. . .	1 ounce.
Tincture of camphor,	. . .	1 ounce.

Mix, and apply to the breast three or four times a day.

Warm vinegar should be used if the swelling is not reduced by the above means.

Leeches may be applied below the breast, so as not to interfere with application of the vinegar. If swelling and pain still continue, apply warm poultices of hops. Take internally :

Tincture of aconite,	. . .	2 drachms.
Acetate of morphine,	. . .	2 grains.
Sweet spirits of nitre	. . .	1 ounce.
Water,	. . .	3 ounces.

Mix. Dose, a tablespoonful every hour until fever subsides, then every two or three hours. The breast should be supported by straps of adhesive plaster. applied below and around it. If she is scrofulous, use :

Compound syrup of stillingia,	. . .	8 ounces.
Iodide of potash,	. . .	3 drachms.
Fowler's solution,	. . .	1 ½ drachms.

Mix. Dose, two (2) teaspoonfuls three times a day in water. Or this treatment may be followed : For the first three or four days, bathe the breast three times a day with a linament composed of one ounce, each, of camphor, oil of sassafras and oil of cajuput. After bathing use the following ointment :

Finely cut Castile soap,	. . .	1 ½ ounces.
Yellow beeswax,	. . .	½ ounce.
Lard,	. . .	1 ounce.

Melt by a gentle heat, and when nearly cool, add slowly eight (8) drachms of Jamaica spirits, in which thirty (30) grains of camphor has been dissolved. Cut a piece of linen the size of the breast, leaving a hole in the center for the nipple, then spread this ointment on the linen, and apply to the breast as warm as it can be borne. It should be removed every four or six hours, and heated again, to make it soft, and reapplied, first bathing with the linament above named. If matter forms, apply a poultice of slippery elm, or bread and milk. Fresh poke root roasted in ashes until soft, and mashed, and mixed with equal quantities of powdered lobelia and hot water, will be found beneficial.

Constipation and diarrhœa.

May be very dangerous, especially the diarrhœa, and should be promptly treated. For treatment, see *Diarrhœa*.

Homœopathic treatment.

When the breast becomes swollen and tender, belladonna and bryonia either alone, or in alternation, should be given, especially when the pains are shooting and tearing, and there is considerable headache. If after the inflammation is subdued, there is still hardness, give mercury, a dose every six hours.

Silicea may be given when the discharge is watery, and when it proceeds from several openings, and heals slowly.

Graphites or calcarea carb. may be used, especially in obstinate cases.

Administration of remedies.

In the commencement, if belladonna and bryonia are taken, dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and take a teaspoonful every hour.

Other remedies may be taken every three or six hours.

When sulphur, or calcarea are used, a dose night and morning will be sufficient.

Child-bed fever (Puerperal peritonitis)

Is a disease much to be dreaded, and should be treated only by an experienced physician. It is an inflammation of the peritoneum, or membrane lining the abdomen, and covering the bowels.

Symptoms.

Like most fevers it is preceded by shivering, sickness or vomiting, and pain in the abdomen, which is sometimes very extended, or confined to one spot ; the abdomen becomes as large as before delivery, and so tender that the weight of the bed-clothes can scarcely be borne ; pains insupportable ; pulse frequently small and sharp ; skin hot ; tongue white and dry or clean ; patient thirsty ; vomits frequently ; milk and lochia sometimes suppressed ; breathing difficult and sometimes a cough ; bowels costive, or else diarrhœa. When disease terminates fatally, the swelling and tension increases, vomiting continues, pulse frequent and irregular, limbs cold, pain ceasing suddenly, which is a sign of mortification.

Causes.

Violence during delivery, taking cold, diarrhœa, suppressed secretion of milk, severe mental emotions.

Treatment.

Leeches may be applied to the abdomen ; a poultice of flaxseed or Indian meal should follow ; if no leeches are used flannel dipped in spirits of turpentine may be spread over the abdomen. Small doses of lobelia, or ipecac sufficient to produce nausea, and a moisture on the skin, may be first given, or the tincture of veratrum viride, in doses of from five (5) to ten (10) drops every hour will frequently throw the patient into a profuse perspiration. The bowels should be opened by injections of warm water, or other mild agents.

Preventive treatment is of the utmost importance. Keeping in mind that the source of the disease is in the communication of septic matter, every precaution should be taken

to guard against it. If possible, the genitals should never be touched for examination or otherwise, without the hands having been first washed in a solution carbolic acid (1 to 20). A preparation containing a drachm of absolute carbolic acid to two and a half ($2\frac{1}{2}$) ounces of benzoated lard, should be employed for lubricating. All washings or syringings of the genitals should be performed with a solution of carbolic acid (1 to 10).

Homœopathic treatment.

Aconite.—Is the first remedy, especially if the disease commences with a chill.

Belladonna.—If there are sharp pains in the abdomen, with a dragging sensation, throbbing pains in the head, face flushed, glassy appearance of the eyes, retention of urine, excessive tenderness of the abdomen.

Bryonia.—Extreme sensitiveness of the abdomen, constipation, with shooting pains in the abdomen.

Pulsatilla.—Where the attack is mild in the beginning.

Milk leg (Phlegmasia alba dolens).

There will be uneasiness and pain in the lower part of the bowels extending through the hips; sometimes there are no preceding symptoms, but the disease commences with violent chills, succeeded by fever accompanied with severe pain in the thigh; in a day or two the pain diminishes, the limb begins to swell, generally in the groin and extending downwards. Sometimes, however, the swelling attack the calves of the legs first and advances upwards; the skin is very smooth and glossy, and hard and painful to the touch, and the limb feels heavy and stiff. There is fever with small and rapid pulse, thirst, sleeplessness, etc.

Treatment.

Flannel dipped in hot water and vinegar, applied to the whole limb, frequently repeated. Bathing the limb with a mixture of warm sweet oil, two parts; and laudanum, one

part ; and cover with flannel, will be found beneficial. The vinegar and laudanum mixture may be alternated every five or six hours. If the bowels are confined, take the following:

Powdered Senna,	. . . . .	½ drachm.
Powdered jalap,	. . . . .	10 grains.
Powdered cloves,	. . . . .	10 grains.

Mix. Take at one dose in sweetened water.

Homœopathic treatment.

Aconite.—If there is high fever, and burning pain, and heat.

Belladonna.—It is probably the best remedy at the commencement of most cases, especially when the pains are sharp and stitching.

Bryonia.—When there are shooting, or sharp pains from the hip to the foot, with sweating. This may be given in alternation with rhus.

Nursing sore mouth.

The whole inside of the mouth becomes very red ; and so tender as to make it difficult for the patient to eat any solid food.

If the disease is obstinate, it will be absolutely necessary to wean the infant, when the disease will vanish.

Treatment.

Dissolve two (2) ounces of iodide of potash in four (4) ounces of water, and take a teaspoonful twice a day.

Homœopathic treatment.

Mercury.—Is the most important remedy, and may be given in alternation with nux vomica, or china ; especially with china if there is great debility, and exhaustion.

THE DISEASES OF PREGNANCY.

Diseases of pregnancy are those which arise from pregnancy as their cause, or which, from their accidental connection with it, require a modified treatment.

Vomiting.

Generally commences shortly after conception, and ceases on quickening, usually most troublesome on rising, hence called *morning sickness*; it is not unfrequent after meals. Sometimes violent and continues all day. This form requires great attention, and the presence of a medical man. The former will generally be relieved by a mixture composed of a scruple of bicarbonate of potash or soda, dissolved in a wine-glass of water and taken during effervescence with a tablespoonful of lemon juice. These draughts may be repeated, or half a teaspoonful of citrate of potash in water every hour, until the sickness is removed.

Heartburn, and acid eructations.

Denote acid in the stomach, relieved by opening the bowels with magnesia, and taking half a teaspoonful of carbonate of soda, or a wine-glassful of lime-water in milk, three times a day, or when required.

Homœopathic treatment.

Nux vomica and *pulsatilla* are the principal remedies. They may be taken either alone or in alternation.

Pruritis (Itching of the private parts).

Is very annoying and troublesome; in some cases abso-

lutely unbearable. It is doubtful as to what is the cause of it. The parts must be kept perfectly clean, warm water will generally be found the best to use. Powder with starch to which one fourth part of camphor has been added.

Homœopathic treatment.

The best remedy is conium, of which take a dose (six globules) three times a day.

As an application, use an ounce of borax, dissolved in a pint of rose water or rain water. A weak solution of green tea, or a weak infusion of alum, will sometimes be beneficial.

Varicose veins.

An enlargement of the veins of the leg, caused by the pressure of the uterus, on the veins within the abdomen, thus preventing a free return of blood to the heart. This trouble disappears after delivery.

Treatment.

A free use of cold water, or diluted alcohol, at the commencement of the difficulty will afford relief. But when the veins become large, knotted and painful, the leg must be carefully bandaged, beginning at the toes, or a laced stocking should be worn. The bandage should be applied by an intelligent physician.

Piles.

Large soft tumors at the verge of the seat, which sometimes bleed, an affection to which pregnant women are liable, generally caused by constipation. After each evacuation of the bowels, small tumors protrude, causing pain; may be returned by pressing it back with the ball of the finger.

Homœopathic treatment.

Nux vomica and sulphur are the principal remedies; give the nux at night, one (1) dose; and the sulphur in the morning, dose six (6) globules.

Swelling of the feet and limbs.

This is caused by the pressure of the enlarged womb on the lymphatic glands.

Homœopathic treatment.

Bryonia and opium may be given in alternation, every two hours. Dose, six (6) globules.

The limbs should be sponged with vinegar and water.

Infusions of queen of the meadow, and haircap moss or marshmallow may be freely used.

Rubbing the legs, or parts affected with spirits of camphor, or hot whiskey and salt, will sometimes readily relieve. Opodeldoc is also good.

Cramps.

Cramps frequently occur in the calves of legs, hips, back or abdomen, and are very annoying.

Treatment.

When they affect the stomach, take the following :

Compound tinc. of cardamon, . . . 2 ounces.

Compound tinc. of lavender, . . . 2 ounces.

Dose, a teaspoonful as often as necessary.

Incontinence of urine (Enuroses).

This is a partial, or total inability to retain the urine, and is a very annoying complaint.

Homœopathic treatment.

The principal remedies are, pulsatilla, sepia, belladonna, hyosciamus, causticum.

Administration of remedies.

Of the remedy chosen, take six (6) pills, once in three or four hours.

The woman may be allowed to drink freely of the tea of

marshmallows, pumpkin seeds, watermelon seeds, or cleavers.

Difficult urination (Stranguria).

This is an exceedingly troublesome complaint, caused by pressure of the enlarged uterus upon the bladder.

Treatment.

An infusion of marshmallow root and trailing arbutus, marshmallow and peach leaves may be taken. Ten (10) or twenty (20) drops of sweet spirits of nitre may be put in the infusion with benefit.

Homœopathic treatment.

Pulsatilla is the principal remedy. If pulsatilla does not relieve, give nux vomica.

Other remedies are belladonna, cantharides, cocculus, phosphoric acid.

Administration of remedies.

Of the remedy chosen, take six (6) globules every two hours.

Headache.

It is a very common complaint among pregnant women. An infusion of scullcap or valerian may be used with good effect.

Hysterical fits.

Females during the early months of pregnancy, are frequently attacked with fainting and hysterical fits.

Treatment.

See treatment for *hysteria*.

Palpitation of the heart.

This may prove very distressing, especially to delicate women.

Treatment.

Muriated tincture of iron,	. . .	1 ounce.
Syrup of orange peel,	. . .	1 ounce.
Rose water,	. . . . .	6 ounces.

Mix. Dose, one (1) teaspoonful in a wineglass of water after each meal.

Homœopathic treatment.

When caused by anger, chamomilla ; by fear, veratrum ; by joy, coffea ; by sudden fright, opium.

For nervous persons, ignatia, coffea, chamomilla.

Other remedies are belladonna, nux moschata, pulsatilla.

Abortion.

Abortion or miscarriage is an expulsion of the fœtus from the womb, at any time before the seventh month. If it occurs at any time between the seventh month and the full period of gestation, it is called premature delivery ; at this time the child may be saved. If, however, the child is born before the seventh month, it cannot live.

Habitual abortion.

Women who have miscarried once, must use great care in subsequent pregnancies, avoiding all causes calculated to premature action of the uterus.

§ Symptoms of abortion may be embraced in the terms, pain and hemorrhage.

When it happens in consequence of the gradual decay and death of the fœtus, which is by far the most common cause, it is less dangerous than when it occurs suddenly from accidental or violent causes ; under all circumstances, the danger increases with the advance of pregnancy.

Treatment.

When we have reason to believe that the fœtus is dead,

it would be useless to attempt preventing miscarriage ; if the waters be discharged, miscarriage is inevitable.

The first thing of importance, is to see that the patient is placed in bed at once, on a hard mattress, covered very lightly with clothes, and plenty of air. In all cases administer an opiate (one-fourth ($\frac{1}{4}$) grain of the sulphate of morphine, or fifteen (15) drops of Battley's sedative liquor of opium), immediately. But the most essential part of the treatment, is mental and bodily quietude.

When efforts to prevent miscarriage prove ineffectual, and the fœtus is expelled, while the after-birth is retained in the womb and the flooding continues, the *ergot*, or plugging the vagina in the manner recommended under the head of *Flooding*, should be employed.

Arnica.—When it has been brought on by an accident, as a fall, blow, shake, concussion ; a dose every ten, fifteen, and twenty minutes in very urgent cases, and afterward every half hour, gradually extending the interval to three hours.

Sabina.—When there are dragging pains ; a dose every ten, fifteen or twenty minutes ; then every half hour.

Ipecacuanha.—Chill, with heat, flooding of bright red blood ; a dose every five, ten, fifteen or twenty minutes, and subsequently every half hour.

CHILDREN.

Management of the new-born child.

A new-born infant's body is usually covered with an unctuous or sebaceous material ; before using the soap and water rub the entire surface gently with sweet oil or the yolk of a raw egg. Then warm water and castile soap may be applied. When the washing is done the skin should be dried with a warm, soft linen cloth.

Then dress the cord. Take a piece of linen about three inches square, double it, cut a hole in the center, through which the cord is to be drawn. The cord is then enveloped in linen, turned upward on the abdomen. A circular band is applied, which will retain the dressing in its place, also afford comfortable support to the child. The bandage must not be too tight. The child may then be dressed. Give the child nothing but the mother's milk. As soon, therefore, as the mother has been cleansed the child should be put to the breast.

Artificial nursing.

Food should be, especially in the earlier months, as nearly like the milk of the mother as possible. A close imitation is made by the addition to fresh cow's milk, of half its bulk of soft water, in each pint of which has been mixed a teaspoonful of powdered sugar of milk, and a pinch of phosphate of lime; in the absence of these, the milk and water alone, when fresh and pure, are safer than an artificial compound which requires cooking. The best mode of administering food is in a fresh, tepid, liquid state, frequently, and in small quantities at a time.

The wholesomest nutriment for the first six months is milk alone.

Weaning.

It is difficult to fix a period when weaning should be attempted; it never should be done suddenly. When an infant is cutting one or more teeth, it is not a favorable time.

The mother must be firm, and if the infant has been accustomed to artificial food for some time, it will not require any great display of this quality.

Cleanliness.

The most scrupulous regard must be paid to this, not only for the comfort of the babe, but also from fear of cold. The parts soiled, carefully washed with a sponge and warm

water, and the groins freely dusted. The child ought every morning to be washed from head to foot.

The parts that ought to be kept warm are the chest, bowels and feet. It ought to wear fine flannel next the skin, and changed frequently. The dress should be loose. A nurse cannot be too particular in seeing that clothes are well aired before they are put on.

Exercise.

For the first month the infant requires but little; but after the first month, on every fair day, it may be carried out for an hour. It should be well wrapped up.

Swelling and elongation of the head.

It often happens, especially after a severe and protracted labor. This difficulty will disappear in a day or two.

Distortions of various parts of the body, as club-foot, etc.

Are not uncommon. They are to be treated by careful bandaging, etc., under the direction of a surgeon.

Tongue tied may be known by the child not being able to suck. Requires a simple operation for its removal.

Hare lip is well known. If it can take the breast freely the operation had better be deferred for a year or more.

Hydrocele is a collection of water in the bag of the male infant. It is cured by a lotion of muriate ammonia and water; but if the fluid is not dispersed by these means, the bag will require puncturing in after life to let out the fluid.

Prolapsus ani (coming down of the anus). When this takes place it should be carefully returned by very gentle pressure.

Blue disease, or cynopathy, arises from imperfection or malformation of the heart.

There is no remedy in medicine for this disease.

Difficulty of passing water (Dysurea), is to be relieved by warm fomentations and a drop or two of sweet spirits of nitre.

Restlessness and sleeplessness.

This may be occasioned by cramps, colic, etc.

Excoriation and rawness of the skin.

The parts should be kept dry, and dusted with fine starch, powdered, or washed with a very weak solution of arnica tincture.

Jaundice (Icterus).

Called yellow gum, is an affection occurring a short time after the birth of the infant ; it is a yellowish tinge, sometimes extending over the whole surface of the body.

An infusion of catnip and saffron may be given with advantage. A little rhubarb and castor oil may be given to open the bowels.

Wetting the bed is generally incurable, until towards puberty, (see chapter on *Urine, Incontinence of*).

Earache.

Is a frequent and painful disease, both of infants and children. Heat is the best remedy : a warm poultice, or warm oil should be applied to the ear, and the back of the ear should be rubbed with warm laudanum. If there is a fetid discharge, the ear should be syringed carefully.

Ophthalmia, or inflammation of the eye.

(See *Diseases of the eye*).

Red gum, or Strophulus intertrinctus.

An eruption of a vivid red color, on the face and neck of young infants, and somewhat resembles measles ; but there is no cough or fever. It is of little consequence and arises from irritation of the bowels, and calls for a dose or two of magnesia.

White gum, or Strophulus albidus.

This attacks older children than the former. It generally

comes on after exposure to the sun, and has been mistaken for itch. It requires no particular treatment.

Strophulus confertus, and Strophulus volaticus.

These are teething rashes. Gentle laxatives of magnesia and rhubarb are all that is required.

Strophulus candidus.

The papulæ are paler than the surrounding skin, and of a smooth and shining appearance. Taken for itch, but it is not itchy.

Inter rigo, or chapings.

Is a small rash on the folds of the groin, arm-pits, etc., which soon forms a sore. The parts should be frequently washed with warm milk and water, and then well dusted with powdered magnesia.

Swelling of the breasts.

Sometimes at birth or soon after, the breasts of the infant are swollen and inflamed ; this may generally be reduced by covering the breasts with a piece of soft linen, dipped in sweet oil.

Of injuries received in the birth.

When the child has been long in the birth, it is not uncommon for it to have a tumor of the scalp which generally subsides in a few days, and only requires to be rubbed with a little camphorated spirit.

Scratches on the head, like the marks caused by whipcord, do not require any treatment.

The face and eyelids, and many other parts may be much discolored ; these appearances go off in a few days.

Mo hers' marks (Neva materna).

May be on any part of the body. When merely discolorations of the skin, and not elevated, they are not dangerous,

but seldom admit of cure. But when they are elevated, and of a purple color and grow rapidly, an operation becomes needful for their removal; as they might burst, and cause so great a loss of blood as to prove fatal.

Teething.

Generally the first teeth cut the gum from about the sixth to the eighth month, but some very delicate or rickety children have no teeth until a year and a half old. The two middle front teeth appear first, and in about a month the two opposite ones; then two side teeth in front, both above and below; about the twelfth or fourteenth month the first double tooth appears; about the sixteenth or twentieth month the eye teeth appear, and from that period to the thirtieth month the back double teeth come through. The child is about two and a half years old when it has all its first set of teeth, twenty in number. These continue to the sixth or seventh year, when they begin to fade and fall out, to make room for the permanent set.

Dropsy of the brain (Hydrocephalus).

This is an accumulation of water in the skull, and more frequently affects infants.

Causes.

In some families there appears to be a predisposition to it. Among the exciting causes may be named, teething, diarrhœa, blows, falls, cold, chronic inflammation of the brain.

Treatment.

From what has just been said, it will be seen that anything like curative treatment must be directed to the early or premonitory symptoms of the disease.

I have seen decidedly good results from one (1) to six (6) grains of iodide of potash, according to the age of the child, administered three times a day, with a small dose of cod-liver oil; at the same time attending to the state of the bow-

els, and giving suitable doses of bromide of potash at night till the restless condition, with disturbed sleep, has passed away. The child needs the most careful nursing, and to be well supported with strong beef tea and milk, so long as it is capable of taking food, whilst attention is paid to the bowels.

Homœopathic treatment.

Bryonia and hellebore.—Are the principal remedies, especially when the child is drowsy ; head hot ; feet cold ; sleeps with the eyes half open.

Dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and give a teaspoonful every hour or two. If this does not relieve within a short time, give opium and sulphur in the same manner. Afterwards belladonna and hellebore in the same manner.

Chicken pox (Varicella).

This disease has been so seldom met with in grown-up people, that it may be considered as peculiar to children. It is a disorder of very little importance.

Symptoms.

The eruption generally makes its appearance without symptoms of fever, it is frequently preceded by head-ache, drowsiness, foul tongue, sickness at stomach, and slight increase in the heat of the skin and quickness of the pulse ; these symptoms seldom continue longer than twenty-four hours. Eruption is generally first observed either on the breast, or all over the body, at the same time. The pocks are distinct, irregular in shape and size, though for the most part, they are oblong, or of an irregularly circular form, and vary from the size of the head of a pin to that of a split pea, filled, on the first day of their appearance, with a clear inodorous fluid, accompanied with itching, and there is a red margin round the base of each. Second or third day, pocks begin to burst ; on third or fourth day, the fluid in those that remain entire acquires a straw-colored appearance, and soon

dries up, leaving crusts which crumble away gradually, or fall off in scales about the fifth or sixth day, without leaving pits, except a little redness, which soon disappears. All the eruption does not come out at the same time.

Treatment.

This disease is of so harmless a nature, that it may safely be left to nature.

In the severer forms of it, a dose of magnesia, or a saline laxative may be given, and cooling drinks.

After the scab falls off, it is advisable to immerse the child in a warm bath.

Homœopathic treatment.

For the fever and headache, give aconite and belladonna alternately.

If there is aching of the bones, and bilious symptoms, give bryonia and rhus, alternately.

For restlessness and nervous excitement, disturbed sleep, etc., give coffea. If there is a painful discharge of urine give cantharides, or conium, or both alternately.

If the eruption is very severe, give tartar emetic.

Administration of remedies.

Dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and give a teaspoonful every three or four hours. If there be fever, headache, restlessness, etc., a dose may be given every hour.

Cholera infantum (Summer complaint).

This disease of the summer and early fall months generally attacks children between the ages of four and twenty months.

Causes are excessive heat, an unusually warm and moist season, impure air, insufficient or improper food, insufficient clothing, and most frequently the irritation of teething.

Manner of seizure is not always the same. It may com-

mence as a simple diarrhœa, with few symptoms of derangement of the stomach ; or violent vomiting and purging may suddenly occur. The discharges from the bowels are very variable, features anxious and expressive of suffering, skin dryer than natural, and the extremities cooler—in severe cases they may be cold and blue. Abdomen is usually warmer than natural. The general feverish symptoms increase towards evening.

The sleeping room should be large and airy ; the bed a hair mattress or folded blanket, cold bath or cold spongings every morning. The child should be taken into the open air every pleasant day ; not for a few minutes only, but for hours.

A flannel roller should be kept constantly applied to the abdomen. The mother's milk is the child's best food, if the parent is healthy.

This is a dangerous disease, and when it is possible to have the services of a good physician, do so by all means.

Treatment.

When the vomiting is severe and obstinate, give the following :

Sugar of lead,	. . . . .	4 grains.
Vinegar,	. . . . .	6 drops.
Loaf sugar,	. . . . .	4 drachms.
Soft water,	. . . . .	1 ounce.

Mix. Dose, one (1) teaspoonful every hour or two.

To an infant of six months of age and under, give a grain of sulphate of quinine with a few grains of white sugar, diffused in a teaspoonful of cold water. To a child of twelve months, two (2) grains of quinine ; and to one of eighteen months, three (3) grains. If the dose is immediately rejected, repeat it over again every half hour. After a few repetitions enough will be absorbed if it is not even swallowed, to bring the little patient fully under its influence. If the first dose is, however, entirely retained, allow the patient

to rest for two or three hours, then repeat the dose, and continue to repeat it until the thermometer in the axilla (arm-pit) and the finger on the pulse indicate that rapid sedation is ensuing.

Homœopathic treatment.

Ipecac.—This is generally the most important remedy.

Veratrum.—Where the attack has been violent, and there is great exhaustion from vomiting.

Chamomilla.—Better adapted to children when they are cross and fretful from teething.

Mercurius.—Stools attended with colic and straining; passages greenish and sour, sometimes mixed with blood; the child smells sour.

Podophyllin.—Child moans in its sleep, and rolls its head.

Carbo veg.—Stools smell putrid, are very thin, and attended with burning pain.

Administration of remedies.

Where the attack is sudden, dissolve twelve (12) globules in twelve (12) teaspoonfuls of water, and give a teaspoonful every fifteen minutes or half an hour, until the child is better. Where the case has been continued for a long time, give a dose every two or four hours.

Convulsions, fits.

By the word convulsion we mean a violent and involuntary contraction of the muscles of the whole or part of the body, and consists in some affection of the spinal system of nerves.

Treatment.

Find the cause and treat that.

If caused by teething.—Freely dash cold water upon the face, sponge the head with cold water, and put into a warm bath, for fifteen minutes, drying quickly and put in warm blankets.

If by overfeeding.—Give every ten minutes a teaspoonful of ipecacuanha wine, until free vomiting be excited, then put in a warm bath ; when taken out give a teaspoonful of castor oil, repeat every four hours until bowels act.

Do not apply leeches to the head.

If caused by whooping cough.—Dash cold water on the face and immerse in a bath of warm water.

Homœopathic treatment.

If the convulsion has been caused by overloading the stomach, give an emetic of tepid water, at once ; its operation may be hastened by tickling the throat with the feathered end of a quill.

If the spasms are caused by teething, and the gums are red and swollen, cut them with a sharp pen-knife. Belladonna and coffea may be given in alternation, every ten or fifteen minutes. If there is much fever, give aconite, especially if there is great restlessness, crying and starting. Give chamomilla, if the muscles of the eyes and face twitch convulsively ; rolling of the head from side to side ; one cheek red, and the other pale. Belladonna may be given in alternation, when chamomilla, alone, fails.

Administration of remedies.

Dissolve twelve (12) globules in twelve (12) teaspoonfuls of water every ten, fifteen or twenty minutes, according to the urgency of the symptoms. Lengthen the intervals as the child improves.

Croup.

This well known disease requires the promptest treatment. From the moment we are sure of the nature of the complaint, recourse must be had to remedies which should be always at hand. It has terminated fatally in twenty-four hours.

Croup occurs commonly in children between the ages of two and six years. Rarely met with in infants at the breast.

Symptoms.

Croup may attack a child suddenly, but it usually commences with all the appearance of common cough. Sooner or later the character of the cough suddenly alters and assumes what is called the croupy sound, usually in the night, and is so peculiar that when once heard the croupy cough can never be mistaken again. It is a sharp dry, ringing cough, which is followed by a hissing inspiration, and is compared to the crowing of a cock, or the barking of a young puppy.

Treatment.

Never be without a bottle of ipecacuanha wine. Give instantly one (1) teaspoonful, and repeat every five minutes until free vomiting be excited. In the meantime sending immediately for a medical man. If the wine is not at hand give a solution of tartar emetic in an ounce of water, a teaspoonful every fifteen minutes until vomiting is produced. Mustard, or hot bran poultices should be applied to the neck. Apply a good sized sponge, wet in water, as hot as can be borne, to the throat, renewing it as soon as it begins to cool. Keep it up until the skin looks very red, or the child is better. This may be used only at the commencement of the disease.

Half ($\frac{1}{2}$) teaspoonful, each, of alum and ipecac in half a glass of warm water, and given as quickly as possible ; if it does not vomit in ten minutes, repeat the dose.

Homœopathic treatment.

When the first symptoms make their appearance, such as hoarse cough with fever, give aconite and spongia in alternation, every hour. If, however, the child is awakened from sleep, with the peculiar crowing, barking cough of croup, give tartar emetic and spongia in alternation, every ten or fifteen minutes. A warm bath is beneficial when the symptoms are severe. It should be about 96 degrees, at first, and gradually made warm by the addition of hot water. When taken from the bath, it should be wiped dry, quickly, and well

wrapped up. Cloths wet in cold water, applied to the throat, and covered with flannel, will be found of great service. For the ringing, moist, and loose cough, which remains after the violence of the paroxysm has subsided, give spongia and hepar, in alternation, every hour.

Mumps (Parotitis).

Is a specific inflammatory affection capable of being propagated by a peculiar contagion, and occurring sometimes epidemically.

The affected gland is called the parotid gland, and is situated under the ear. This disease is met with oftener in children over seven years than younger. It very seldom attacks a child the second time.

Symptoms.

Slight fever, and symptoms of catarrh. Neck becomes stiff, and moving jaw, either for speaking or eating, is painful. In about twenty-four hours, a swelling makes its appearance at the angle of the lower jaw, which increases rapidly in size. The inflammation reaches its height in three or four days, and finally disappears in ten days or two weeks.

Treatment.

In mild cases, keep the bowels open, use gentle diaphoretics. The parts should be kept warm—avoid taking cold.

If suffering is experienced from the swollen gland, an application of the chloroform linament will usually allay it in a few minutes.

Homœopathic treatment.

The principal remedy is mercurius, of which a dose (four (4) globules) may be taken twice a day.

Rickets.

Occur generally in children between the ninth month and fourth year, and is characterized by softening of the bones.

In early stage of the disease the child is less cheerful than usual, languid, disinclined to be amused; the appetite impaired or capricious; and bowels irregular. Teething goes on slowly, teeth soon decay and fall out. The bones of the skull separate from each other, the head increases in size, belly is enlarged, the limbs, more especially the thighs and legs, appear thin and wasted. After a longer or shorter period, the ends of the long bones at the wrists and ankles, and the extremities of the ribs where they join the breast bone, become swollen and knotted; spine is curved in the form of a letter S; the right shoulder rises, and breast bone is thrust forwards.

Various mechanical means have been invented to correct the deformity which results from rickets, and, when skilfully used, are often of great service; but it must be borne in mind that no contrivances of this nature can be advantageously employed during the progress of the disease.

Diet, fresh air and cleanliness are the essentials to cure.

The secondary consideration is drugs. A light dose of castor oil to regulate the bowels; or rhubarb and soda to clear away undigested food, and afterwards a little bicarbonate of soda, with a drop of opium in a little aromatic water will soon remove the offensiveness of the evacuations, afterwards a little citrate of iron. Codliver oil should be given, with small doses at first, from fifteen (15) to twenty (20) minims, if there is too much oil it will be visible in the stools, then make the dose smaller. Iron and quinine may be given as tonic treatment. The utmost watchfulness on the mother's part is necessary. Bowing of the legs may be prevented by bandaging with well padded splints, which extend below the feet.

When the ligaments of the joints are loose and weak, the joints may be much strengthened by a well fitting silk elastic support. After the tenderness of the body has subsided, the child should be well rubbed especially along the spine, both morning and evening.

Whooping cough (Pertussis).

Is contagious ; commences with hoarseness, sneezing and other symptoms of a cold. It is recognized by a convulsive paroxysm of cough, which is attended with hissing breathing, and rattling in the wind-pipe, the convulsive breathing attended by a whooping sound, until a quantity of thick, ropy mucus is thrown up, when the breathing is again free. During the coughing, the child's face is red, sweating about the head, and agitation of the whole body ; blood sometimes starts from the nostrils, and the patient involuntarily passes water, or evacuates the bowels.

During a fit of whooping cough, if mild, the patient suffers but little from the attack, and soon returns to its ordinary amusements.

Treatment.

In simple cases little treatment is requisite. In its severer forms, treatment is highly useful in alleviating symptoms, and, in complicated cases, frequently indispensable to safety.

The following may be used in the more severe forms :

Camphor water,	. . . . .	2 ounces.
Tincture of hyosciamus,	. . . . .	1 drachm.
Dilute hydrocyanic acid,	. . . . .	5 drops.

Dose, for a child from three to six years old, one teaspoonful three times a day.

Black cohosh, to a child one year of age, give from fifteen (15) to twenty (20) drops, four or five times a day.

The following is a valuable remedy :

Extract of belladonna,	. . . . .	10 grains.
Alcohol,	. . . . .	1½ ounce.

Mix thoroughly, and add simple syrup, four (4) ounces,

and pulverized alum, one (1) drachm. Dose, a teaspoonful every three, four or five hours.

The child should always be clothed with flannel next the skin. Damp should always be avoided.

Homœopathic treatment.

A very valuable remedy is mephitis putorius. A dose may be given every four hours. Drosera is another valuable remedy, especially when the following symptoms are present : spasmodic cough, worse at night ; when coughing, the child presses its hand upon the pit of the stomach.

Aconite.—May be given when there is much fever, with short, dry cough, and pain in the chest. This remedy may be given in alternation with bryonia or phosphorus, especially when there is threatened inflammation of the lungs.

Tartar emetic.—When at the commencement, there is hard, suffocating cough.

Chamomilla.—Wheezing and rattling at each inspiration, cough excited by an irritation of the wind-pipe.

Cuprum.—Frequent fits of coughing with stiffness of the whole body.

Other remedies are carbo veg., dulcamara, cina, belladonna, mercury, opium, hellebore.

Administration of remedies.

Of the remedy chosen, dissolve twelve (12) pills in twelve (12) teaspoonfuls of water, and give a teaspoonful every two, three, or six hours.

MATERIA MEDICA.

Prof. H. Clark, of Harvard (Boston), in his review of the American Journal of Medical Sciences, makes this remark :

“No scientific classification of the *materia medica*, is possible in the present state of science. Writers are, therefore, justified in adapting any classification that may suit their fancy, or adopting none at all.”

This difficulty, together with the one of the limited space afforded in a work of this character, and the desire to give prominence, in this domestic dispensatory, to the most useful remedies, make a systematic classification impossible.

Many of the plants in use have been carefully illustrated in order to make it as practical as possible.

The art of prescribing medicines, *i. e.*, of adapting them to the treatment of individual cases, is one of prime importance, which cannot with propriety be discussed here, but I will offer a few remarks with practical examples.

APOTHECARIES' DRY MEASURE.

1 Scruple equals	. . . . .	20 grains, or 1.25 grams.
3 Scruples	. . . . .	60 grains or 1 drachm, or 4 grams.
8 drachms	. . . . .	1 ounce, or 32 grams.
12 ounces	. . . . .	1 pound, or 384 grams.

APOTHECARIES' FLUID MEASURE.

60 minims, or drops,	. . . . .	1 fluid drachm, (4 grams).
8 fluid drachms	. . . . .	1 ounce, (32 grams).
16 “ ounces	. . . . .	1 pint, (500 grams).
2 “ pint	-	1 quart, (1000 grams).

The metric system of weights and measures—so called because the metre is the unit from which the other units of the system are derived—had its origin in France during the Revolution, a time when all regard for institutions of the past was repudiated. The first work of the commission was to select a standard of length from which the system of units adopted might at any time be restored, if from any cause the original unit should be lost. A quadrant of the earth's meridian was chosen as the standard, and the ten millionth part of it taken as the unit of lengths, which was called a metre. Other members of the commission sought out a unit of weights that should sustain an invariable relation to the unit of lengths. The weight of a cube of pure water, whose edge was one-hundredth part of a metre, was the unit chosen. This weight was called a *gramme*, and a piece of platinum weighing one thousand grammes was deposited as the standard of weights in the national archives.

The great benefits which result from the labors of the of the commission arise from the adoption of the decimal scale of units, and a simple yet general and expressive nomenclature. In 1866, Congress authorized the use of the metric system in weights and measures.

We only need to consider the metric system in its relation to weights. The gramme, the principal unit of the table is expressed in grains, hence we reduce pounds and ounces to grains. This can be best illustrated by the following :

In 10 lbs. and 4 ounces, how many grammes.

10 lbs. 4 oz., is equal to 10.25 lbs.

10.25 lbs., multiplied by 7000 is equal to 71750 grains.

71750 grains divided by 15.4 (No. of grains in 1 gramme) is equal to 4659 grammes.

All that is necessary to be learned is that a gramme is equal to about 16 grains, and centigrams, and milligrams are hundredth and thousandth parts of grammes, expressed decimally. As the metric system is destined to supercede the old and arbitrary tables now in use, it would be advisable for all to give the little study to this necessary in order to learn it.

For the sake of convenience, in the absence of proper instruments, we often make use of means of measurement, which, though not precise nor uniform, afford results sufficiently accurate for ordinary purposes.

A teacup contains about	. . . . .	4 fluid ounces, or 1 gill.
A wineglass	. . . . .	2 " "
A tablespoon	. . . . .	$\frac{1}{2}$ " "
A teaspoon	. . . . .	1 " drachm.

But the propriety of accurately weighing or measuring the doses of medicines must be obvious to everyone; every medicine chest should be furnished with a set of apothecaries' weights, a graduated measure for drops, (minims,) for drachms, and for ounces.

Small quantities of liquid medicines are often administered by drops, each of which is usually considered equivalent to a minim, or the sixtieth part of a fluid drachm. The drop of water, and of watery fluid is, sometimes, about that size; but the same is by no means the case with all medicinal liquids, and the drop even of the same liquid varies much in bulk according to the circumstances under which it is formed. This is therefore, an uncertain mode of estimating the quantity of liquids, and should be superseded, where minim measures can be had. Certain general rules however, influence the formation of drops, which will enable us to form some notion of their probable relative number in the same amount of liquid, when possessed of the requisite data. Thus, the heavier the liquid, the smaller, other things being equal, is the size of the drops, and the greater their number in a given measure. The drop of chloroform, for example, which is a very heavy liquid, is very small, much smaller than that of alcohol or ether. The drop from a full bottle should be less than from one more or less emptied. The broader the surface from which they fall, the greater is their size. The drops from a thickened lipped bottle, are larger than from one with thin lips.

UTENSILS.

NECESSARY FOR THE FAMILY MEDICINE CHEST.

1. A two or three ounce graduated measure.
 2. A large and small spatula for spreading ointments, plasters, etc.
 3. Weights and scales;—a larger set to weigh ounces;—a smaller for grains, scruples and drachms.
 4. A clyster syringe.
 5. A pint marble mortar and pestle.
 6. A half-pint glass do.
 7. A slab of marble, or of Wedgewood's composition, for sundry purposes.
 8. A minim glass.
- A minim glass is used for measuring the smallest portions of liquids, at regular intervals.

DOSES OF MEDICINE.

The doses of medicines directed in this work, unless otherwise particularly mentioned, are intended for grown up persons of moderate strength.

The following table shows the proportions in which the doses should be diminished during the earlier periods of life.

Suppose the dose for an adult is one drachm, (60 grains.)

For one from 14 to 21 years, it

it will be two-thirds, or two scruples, (40 grains.)

For one from 7 to 14 years one-half, or half a drachm, (30 grains.)

“ 4 to 7 “ one-third, or one scruple, (20 grains)

“ of 4 years of age one-fourth, or fifteen grains.

“ of 3 “ one-sixth, or half a scruple, (10 grains.)

“ of 2 “ one-eighth, or eight grains.

“ of 1 “ one-twelfth, or five grains.

The proportions of some medicines for children vary from those mentioned above. For example, castor oil and calomel; of which the doses for a child two or three years old are about half those for an adult.

One drop of laudanum is a full dose for an infant less than a month old.

ABBREVIATIONS AND SIGNS USED IN MEDICINE.

R stands for *recipe*, meaning to take.

āā stands for *ana*, meaning of each.

℔ stands for *libra vel libræ*, meaning a pound or pounds.

ʒ stands for *uncia vel uncie*, meaning an ounce or ounces.

ʒ stands for *drachma vel drachmæ*, meaning a drachm or drachms.

ʒ stands for *scrupulus vel scrupuli*, meaning a scruple or scruples.

O stands for *octarius vel oterii*, meaning a pint or pints.

℥ stands for *fluiduncia vel fluidunciæ*, meaning a fluid ounce or fluid ounces.

℥ stands for *fluidrachma vel fluidrachmæ*, meaning a fluid drachm or fluid drachms.

m stands for *minimum vel minima*, meaning a minim or minims.

Chart. stands for *chartula vel chartulæ*, meaning a small paper or papers.

Coch. stands for *cochlear vel cochlearia*, meaning a spoonful or spoonfuls.

Collyr. stands for *collyrium*, and means an eye-water.

Cong. stands for *conguis vel conguui*, meaning a gallon or gallons.

Decoct. stands for *decoctum*, and means a decoction.

Ft. stands for *fiat*, meaning make.

Garg. stands for *gargarysma*, meaning a gargle.

Gr. stands for *granum vel grana*, meaning a grain or grains.

Gtt. or *gutta vel guttæ*, means a drop or drops.

Haust. or *haustus*, a draught.

Infus. or *infusum*, an infusion.

M. or *misce*, and means mix.

Mass. or *massa*, a mass.

Mist. or *mistura*, a mixture.

Pil. or *pilula vel pilulæ*, a pill or pills.

Pulv. or *pulves vel pulveres*, a powder or powders.

Q. S. or *quantum sufficit*, a sufficient quantity.

S. or *sig.* or *signa*, means write.

Ss. or *semis*, a half.

HOME DISPENSATORY.

The U. S. Dispensatory of 1883, makes the following sub-division of medicines which we have thought advisable to follow, as far as is practicable, in our home dispensatory, viz:

GENERAL REMEDIES.

I. *Astringents*, or substances which call in play the vital activities of the tissues in such a way as to cause contraction or condensation of the part.

II. *Tonics*, or substances which are used to directly or indirectly increase the power of the organism by stimulating, or aiding in its nutritive processes. Such are *simple bitters*, which possess no other property than that of stimulating the stomach, and increasing digestive activity; *aromatics*, which are still more stimulant to the gastro-intestinal mucus membrane, but less permanent in their influence, and all contain a volatile oil; *mineral tonics*, which all possess more or less peculiar properties.

III. *Cardiac stimulants*; and

IV. *Cardiac sedatives*, including drugs which are employed respectively to increase and decrease the force of the circulation, by acting upon the heart and vaso-motor system.

V. *Anti-spasmodics*, or *nervous stimulants*, which, with a slight general

stimulant power, exert a peculiar influence over the nervous system, exhibited in the relaxation of hysterical spasm, the calming of nervous irritation, etc., without any special and decided tendency to the brain.

VI. *Analgesics*, remedies which are used to overcome pain, by an action upon the nervous system.

VII. *Midriatics*, or substances which dilate the pupil and mostly also act as peculiar stimulants to the so called sympathetic, *i. e.*, vaso-motor nervous system.

VIII. *Anæsthetic*, gaseous bodies or vapors employed to produce surgical anæsthesia.

IX. *Excito-motors*; and

X. *Depresso-motors*, used respectively for augmenting or diminishing the activity of the spinal or peripheral motor apparatus.

XI. *Alteratives*, medicines employed to modify the nutritive processes of the body when in a diseased condition.

LOCAL REMEDIES.

May be divided into four sections:

a, Those affecting the functions of a part, viz:

I. *Emetics*, which act upon the stomach, producing vomiting.

II. *Cathartics*, which act on the bowels producing a purgative effect.

III. *Diuretics*, which act on the kidneys, producing an increased flow of urine.

IV. *Anti-lithics*, which act on the same organs, preventing the formation of calculous matter.

V. *Diaphoretics*, which increase the cutaneous discharge.

VI. *Expectorants*, which augment the secretion from the pulmonary mucous membrane, or promote the discharge of the secreted matter.

VII. *Cholagogues*, which increase the flow of bile.

VIII. *Emmenagogues*, which excite the menstrual secretion.

IX. *Uterine motors, stimulants, or oxytocics*, which specially promote uterine contraction.

X. *Sialogogues*, which increase the flow of saliva, and

XI. *Errhines*, which increase the discharge of the mucous membrane from the nostrils.

b, Those affecting the organization of a part, including:

I. *Rubefaciens*, which produce redness and inflammation of the skin.

II. *Epispastics or vesicatories*, which produce a serous discharge beneath the cuticle, forming a blister, and

III. *Escharotics or caustics*, which destroy the life of the part upon which they act.

c, Those acting by a mechanical agency, consisting of:

I. *Demulcents*, which lubricate the surface to which they are applied, and prevent the contact of irritating substances, or mingle with these and diminish their acrimony.

II. *Emollients*, which serve as vehicles for the application of warmth and moisture; and

III. *Protectives*, which operate by excluding the air.

d. Those which act on extraneous matter contained within the organs, including:

I. *Antacids*, which neutralize acid, whether existing in the alimentary canal, or circulating with the blood.

II. *Absorbents*, which absorb, and thus in some degree counteract certain irritant or poisonous substances.

III. *Solvents*, which promote the solution of indigestible matters in the stomach.

IV. *Anthelmintics*, which destroy worms, or expel them from the bowels.

V. *Disinfectants*, which prevent or destroy noxious or offensive effluvia, and counteract other injurious influences originating in animal or vegetable decomposition, including *antizymotics*, which destroy or render inert all microbic organized beings which are hostile to the human health by promoting the fermenting processes.

It is believed that all substances employed as medicines, with the exception of very few, which are so peculiar in their action as scarcely to admit of classification, may be distributed without violence among the above classes. Some substances, however, in addition to the properties of the classes, to which they are severally attached, possess others in common which give them practical value, and authorize the association in distinct groups, not recognized in the system of classification, but constantly referred to in medical language.

Thus we have *refrigerants*, which when internally administered, diminish animal temperature; and *carminatives*, which by promoting contraction in the muscular coat of the stomach and bowels cause the expulsion of flatus.

Narcotics are remedies which have a sedative influence upon the nervous system. They frequently promote sleep, relieve pain, and produce insensibility, and, in relation to these properties are called *saporifics*, *anodynes* or *analgesics*, and *anæsthetics*; and various medicines, which, by diversified modes of action, serve to remove chronic inflammation, and enlargements of the glands and viscera, are called *deobstruents*.

These terms are occasionally employed in the following pages, and are here explained, in order that the sense in which we use them may be accurately understood.

ASTRINGENTS.

AVENS. *Bot. name, Geum urbanum and Geum rivale.*

A tonic and powerful astringent. A native plant, used in chronic or passive hemorrhages, in whites, in diarrhœa, in dyspepsia and in the debility of consumption. Dose, of the powdered root, one scruple to one drachm three times a day. Decoction, one ounce in a pint of water; and given in doses of one to two fluid ounces.

BEARBERRY. *Bot. name, Uvaursi.*

Astringent and tonic. Given in diseases of the urinary organs of nearly every kind, in the chronic stage. Dose, of the powder, one scruple to one drachm, three or four times a day.

CATECHU. *Bot. name, Acacia catechu.*

Catechu, produced from a species of acacia, which grows in various parts of India. An excellent and very powerful astringent, frequently used to



Bearberry.



Chamomile.



American Hellebore.



Sweet Flag.

stop purging, when there are no inflammatory symptoms present, in combination with chalk mixture and laudanum. To check gleet, whites, discharges of blood from bowels and womb, and all immoderate discharges when not attended with inflammation. A little of it put into the mouth and sucked slowly, is the best remedy for relaxation uvula, when it hangs down, and causes irritation, cough, and difficulty of swallowing.

BLACKBERRY—(The root of blackberry.) *Bot. name, Rubis Canadensis*, and of dewberry, *Rubis villosus*.

The bark in which resides all the virtue, is greyish brown. Use, mild astringent. Dose, 10 to 30 grs. in infusion or decoction.

Dose 10 grains to a drachm.

ALUM.

A powerful astringent. In cases of painter's colic, in doses of ten to twenty grains every fourth or fifth hour. It was formerly employed in internal bleeding and gleet, but is now very little used internally. It is serviceable as a wash in arresting bleeding from the nose. Alum, also, forms a very useful gargle in common sore throats.

When used to remove membrane from the throat, should be blown in through a small goose-quill, as it has an injurious effect upon the teeth.

ACETATE OF LEAD. (*Sugar of lead*).

In medicinal doses a powerful astringent and sedative, in over-doses an irritant poison. (See lead poisoning.)

Useful in hemorrhages from the lungs, stomach, intestines and uterus. Combined with opium it is well suited to the treatment of diarrhoea occurring in phthisis. Dr. Geo. B. Wood employed it in several cases of yellow fever, at the beginning of the second stage. Two grains every two hours until thirty-six grains have been taken.

The solution for external use may be made by dissolving two or three drachms in a pint of water. Care should be used that the cuticle is whole, before applying the sugar of lead.

TONICS.

CHAMOMILE FLOWERS. *Bot. name, Chamomile anthemies.*

Aromatic and bitter tonic. Used chiefly in dyspepsia depending on debility of the stomach, in which it is very efficacious. It is generally given in infusion, which is made by taking two drachms of chamomile, and boiling water half a pint, infusing for twenty hours, and straining. Dose, of infusion, one to two ounces several times a day.

GENTIAN. *Bot. name, Gentiana.*

Grows on the sides of roads and in waste pastures, two or three feet high. The stem is strong, smooth, and erect; the leaves, which rise from the lower part of the stem, are spear-shaped, large, ribbed, and rough; flowers yellow, in whorls, terminating in yellow bitter berries. Its virtues are equal to the imported. It has long occupied the first place in all recipes for bitters, whether used to provoke the appetite, or give tone to the system. It may also be taken in the form of infusion, a small handful of the root to a quart of boiling water, in doses of a teacupful, three or four times a day.

In the form of a decoction, it is used with decided advantage in pneumonia, where the fever is nervous: it acts as a tonic and sudorific; a tincture of it is esteemed in dyspepsia, given in doses of one-fourth or half an ounce. It is said to increase the appetite, prevent the acidification of the food, and to enable the stomach to bear and digest articles of diet which before produced oppression and dejection of spirits.

PERUVIAN BARK.

Peruvian bark, or cinchona, commonly termed *bark*, is an admirable tonic and febrifuge. There is no tonic so extensively used as this. It may be given in any of the diseases of debility, in which tonics are indicated; but its value is derived from its power in checking fever, especially ague, and relieving all affections of a periodical character. Dose, in ague, one drachm, to be repeated every four hours, during the intermission: in other affections as a tonic, ten to thirty grains. Quinine, cinchonina, and quinidine, being so much more convenient to administer, has nearly superseded its employment. It is also given in decoction, infusion, and tincture. Its action upon the nervous system is often evinced by a sense of tension, or fullness, or slight pain in the head, ringing in the ears and partial deafness, which are always experienced by many individuals when brought completely under its influence. The effects above mentioned adapt it to a place among the tonics, and it is usually ranked at the very head of this class of medicines. It has, however, certain, at present, inscrutable powers, which enable it to combat the action of malaria. It is, therefore antiperiodic, but why it is so, is at present entirely unknown. At present the bark is not employed in intermittents, but the sulphate of quinine is used instead. Twelve grains is equivalent to about an ounce of bark. As a tonic a grain may be given three or four times a day. In intermittents, twelve to twenty-four grains should be given between the paroxysms. From one to four grains may be given at once, and some advise the whole amount. It should be administered in such a way, that the last dose shall be ingested about two hours before the return of the paroxysm. Quinine exerts in febrile diseases a decided antipyretic action, which is especially manifested during those stages of disease in which the natural tendency is towards a lowering of temperature. In typhus and typhoid fever, scarletina, severe erysipelas, rheumatic hyperæmia, etc., after the use of the cold bath, twenty grains of the alkaloid are very often efficacious in preventing a rapid return of the excessive fever. As an antipyretic the drug should be used whenever there is serious elevation of temperature, except it be in cases of simple inflammation of the brain or its membranes.

QUASSIA. *Bot. name, Quassia excelsa.*

Quassia has in the highest degree all the properties of the simple bitters. Used when a mere tonic is required in dyspepsia, and to that debilitated state of the digestive organs which sometimes succeeds acute disease. Dose of infusion, one-half to one fluid ounce. Tincture, half to one fluid drachm. Extract, half to one grain.

AROMATICS.

CINNAMON AND CASSIA. *Bot. names, Laurus cinnamomum and Laurus cassia.*

Used on account of its vegetable, aromatic, and stimulant properties as an auxiliary to other remedies.

The oil of cinnamon, in doses of three or four drops, on sugar, is sometimes given to relieve spasms of the stomach and flatulent colic.

GINGER. *Bot. name, Aromum zingibar.*

Ginger is a grateful aromatic stimulant and carminative frequently used in dyspepsia, flatulence, and to correct other medicines. Dose of the powder, is from five to twenty grains. An infusion may be made by pouring a pint of boiling water upon half an ounce of the powder, or bruised root, the dose of which is two to four tablespoonfuls. Of the officinal tincture, the dose is one fluid drachm.

CARAWAY SEEDS. *Bot. name, Carum carui.*

A pleasant stomachic and carminative. Used to relieve flatulence. Dose, from one scruple to one drachm. Generally used with other medicines.

CARDAMON SEEDS. *Bot. name, Alpinia cardamonum.*

A stomachic and aromatic like the preceding.

GOLDEN ROD.

Aromatic and carminative. Used in flatulence, generally given in infusion—one pint of water to the ounce of leaves. Dose, two ounces.

SWEET FLAG. *Bot. name, Acorus calamus.*

A feeble aromatic. Used in pain or uneasiness of the stomach or bowels arising from flatulence, and as an adjuvant to tonic or purgative medicines. Dose, from a scruple to a drachm. Infusion, an ounce of the root to a pint of boiling water. Dose, a wineglassful.

CANELLA BARK. *Bot. name, Canella alba.*

Canella bark is tonic and aromatic; it is seldom given alone, but is found useful in preventing griping from aloes, senna, and other strong remedies, and also tends considerably to cover their disagreeable taste. The dose of canella bark is from ten grains to half a drachm.

GARDEN THYME. *Bot. name, Thymus vulgaris.*

Is one of the most powerful of aromatic plants, and, as such, is frequently employed in the form of tea in those complaints where the medicines of this class are indicated.

PEPPERMINT. *Bot. name, Mentha piperita.*

Peppermint is a grateful aromatic stimulant, much used for all the purposes to which medicines of this class are applied. To allay nausea, relieve spasmodic pains of the stomach and bowels, expel flatus, and cover the taste, or qualify the nauseating or griping effects of other medicines are the most common of all these purposes. The fresh herb, bruised, and applied to the epigastrium, often allays sick stomach, and is useful in the cholera of children. The medicine may be given in infusion; but the volatile oil, either alone, or in some state of preparation is generally preferred.



May Apple.



Anemone.



Bloodroot.



Holly.



Crowfoot

CARBONATE OF AMMONIA.

Carbonate of ammonia, or hartshorn, is a powerful stimulant antispasmodic. It is sometimes employed as a sudorific, but is more frequently used as a stimulating application to the nostrils in fainting (*sal volatile*.) The dose of this salt is from five to fifteen or even twenty grains.

The aromatic spirit of ammonia is the more agreeable stimulant, and is employed in weakness of stomach, languor, fainting, flatulent colic, and other nervous disorders. Dose, from half a drachm to a drachm in a wine-glassful of water, and repeated until relief is obtained.

Liquid hartshorn, mixed with olive oil, forms the volatile liniment, a useful external application for sore throat.

All the preparations of ammonia should be kept in stoppered bottles.

MINERAL TONICS.

SULPHURIC ACID. *Poison.*

This acid is generally administered in the form of elixer of vitriol, which is an excellent tonic in the dose of from ten to twenty drops, twice or three times a day, in a cupful of cold water. Of great service in indigestion, where bitter and aromatic remedies have failed to produce any good effect; employed in spitting of blood, and to check excessive perspiration. It may be advantageously combined with the decoction of Peruvian bark, or of quassia.

Women when suckling ought not to take this medicine, because it acts on the system of the infant, producing gripings, and sometimes convulsions.

STRYCHNINE. *Strychnina. (Poison.)*

Strychnine is a very valuable tonic, which may be given along with iron and simple bitters in cases of *anæmia*, especially in cases of general relaxation. Its striking convulsive influence, early led to its use in palsies, and it is habitually employed to-day in various paralytic affections. Ordinary dose, one-twentieth of a grain. Should never be given in liquid form, with the bromides, iodides or chlorides, as cases of poisoning have arisen from neglect of this precaution.

IRON.

So indispensable to the welfare of the human race, is, as the great chemist, Foureroy, states, "perhaps the only metal possessed of medicinal properties, which has no poisonous quality." Indeed, there are few remedial agents of more importance than the preparations of iron. The salts of iron are deservedly said to be invaluable in the various chronic affections occurring in connection with that state of the body called, in medical language, *anæmia*, in which the blood is deficient in quantity, and probably altered in quality. The symptoms which indicate this condition of the system are a soft, flabby state of the flesh, pale countenance, a peculiarly pallid appearance of the lips, general debility, loss of appetite, occasional palpitation of the heart, and shortness of breath on any sudden bodily exertion.

This state is more frequently met with in females, and generally in those who are affected with obstruction of the menses (*chlorosis*.) The diseases

in which the preparations of iron have been found most serviceable are scrofula, rickets, dropsy, menstrual disorders, and various nervous affections, as epilepsy, St. Vitus' dance, hysterics, asthma and tic douloureux.

ARSENIC.

Arsenic in solution is better for internal administration than the solid arsenious acid, and, of three solutions (officinal) Fowler's is the best. Useful in the treatment of malaria, after quinine has been used till it seems to have lost its effect. Fowler's solution, one ounce; tinct. of belladonna, two drachms. Dose, from three to five drops after meals. Used for a tonic.

ARTERIAL, NERVOUS AND CEREBRAL STIMULANTS AND SEDATIVES.

FOXGLOVE. *Bot. name, Digitalis.*

Produces a great rise in the arterial pressure, the increased blood force is partly due to increased cardiac action, and partly to vaso-motor spasm. Indicated, when the work required of the heart is greater than its power. It may be employed hypodermically in sudden cardiac exhaustion from any cause. Dose, of the powder, one grain repeated two or three times a day, gradually increased till some effect is produced upon the head, stomach, pulse, or kidneys, when it should be omitted or reduced.

It is a powerful medicine, and its effects must be closely watched.

ERGOT OF RYE. *Bot. name, Ergota. Stimulant.*

This substance is principally used during labor, in order to assist in expelling the child; and there can be no doubt that it exerts a strong influence over the womb, when given in suitable doses, and in the cases in which its use is indicated; under other circumstances it would produce the very worst effects, and is only, therefore, of value in the hands of a physician of experience.

The ergot of rye is now well ascertained to be one of the most efficacious remedies in arresting the alarming discharges of blood from the womb, commonly called floodings; also in checking excessive menstruation; in gonorrhoea, the whites, and in all mucous discharges. But its most certain property is the power which it possesses of causing the womb to contract, and thereby expelling the child, and also the after-birth, in cases where it has been to long retained.

The average dose of the ergot, in powder, during labor, is twenty-four grains, in a little water, and it may be necessary to repeat the dose three or four times, at intervals of two or three hours. In cases of flooding, a drachm may be divided into six or eight doses, and given at longer or shorter intervals, according to the circumstances of the case. In whites and other mucous discharges, the dose is from five to ten grains, three or four times a day; or twenty grains may be boiled, in eight ounces of water, and taken in the course of two days. The tincture is made by macerating two ounces of the ergot in a pint of proof spirit, for ten days. The dose in cases of tedious labor or flooding, is two or three teaspoonsful every twenty minutes. The infusion, in common use, is made with half a drachm of the ergot to half a pint of boiling water, and one half administered at a time.

The ergot of rye must be kept in a dry place; if exposed to moisture, it becomes useless; the greater part of that found in shops is completely inert.

CAMPHOR. *Bot. name, Camphora.*

Camphor is a powerful stimulant. It should be given in doses of from four to fifteen grains in malignant typhus, in the worst forms of measles, smallpox, scarlet fever, and other eruptive diseases, when accompanied with typhoid symptoms; and also to bring back the eruptions when they have disappeared too suddenly. It has often an excellent effect in painful menstruation, when given in doses of three grains, three or four times a day. As an antispasmodic, it is given in asthma, hysteric, St. Vitus' dance, epilepsy, hiccup, and other spasmodic diseases. To promote perspiration at the commencement of a cold, an ounce of the camphor mixture, with ten grains of nitre in barley-water, or any other warm drink, every three or four hours, is a common and very serviceable remedy. Camphor is useful as a sudorific in many cases; but should never be given when inflammatory action is present.

The following camphor julep, in common use, is made by rubbing together: A scruple of camphor, two drachms of almonds, bleached, a drachm of sugar, and six ounces of peppermint water. Two tablespoonfuls to be taken as a dose every two or three hours.

Camphor is much in use as a counter-irritant; for this purpose it is usually mixed with oil. An ounce of camphor dissolved in four ounces of olive oil forms the camphor liniment of the London Pharmacopœia; either this or the compound camphor liniment, which contains ammonia, is rubbed over the joints, or other parts affected with chronic rheumatism. It is used in the same manner for nervous pains, bruises, sprains, indolent swellings, etc.

A piece of flannel soaked in a strong solution of camphor, (two ounces of camphor mixed with four ounces of rectified spirits of wine,) applied over the chest, and covered with oiled skin, has sometimes the effect of relieving attacks of spasmodic asthma, angina pectoris, cramp, and other cases where there is local derangement of the nervous power.

AMERICAN HELLEBORE. *Bot. name, Veratrum viridi.*

Veratrum is a sedative whose influence is primarily exerted upon the heart.

Given judiciously at the commencement of acute inflammatory diseases, when the heart's action is violent, it is capable of doing much good. The pulse may be reduced in frequency very rapidly by it. It is, however, a remedy which requires to be administered with great care, and is not suitable for domestic use. Dose of the fluid extract, one to three drops every three hours.

POISON HEMLOCK. *Bot. name, Conium maculatum. Sedative.*

This is a well known indigenous plant, found growing in ditches, on the banks of rivers, and in waste places. It flowers in July and early in August, and is distinguished from plants which resemble it in appearance by the spotted stem.

The extract of hemlock, taken in moderate doses, acts on the system in a similar manner to henbane and aconite; and, like those remedies, is also narcotic and sedative, without producing any stimulant effect.

The diseases in which it is principally employed are cancer, syphilis, scrofula, rheumatism, and inflammatory or spasmodic affections. Dose, three or four grains twice a day.

SEDATIVE AND NARCOTIC.

WOLFSBANE OR MONKSHOOD. *Aconite*.

The extract is a powerful remedy in all the stages of rheumatism and of gout. It soothes the excruciating pain arising from cancer and diseases of the womb, when the extract of hemlock ceases to produce that effect. It is of the greatest service in tic-douloureux, scrofulous swellings, old syphilitic diseases, long continued cough, and affections of the stomach.

The symptoms which point out the extent beyond which aconite should not be carried, are a slight degree of uneasiness at the stomach, with inclination to vomit, and occasional dimness of sight, which may be removed almost immediately by taking ammonia and stimulants. Dose: the powder of the roots or leaves may be given in doses of three to twelve grains, thrice daily; of the extract, one to two grains gradually increased.

Aconite may be used externally in the form of the saturated tincture of the root, of extract mixed with lard, of a plaster or liniment, or of aconitine ointment. The tincture may be applied by means of a soft piece of sponge on the end of a stick.

DEADLY NIGHT-SHADE, OR BELLADONNA. *Bot. name, Atropa belladonna*.

This plant grows in hedges, thickets, and shady places, and is frequently met with amongst old ruins. In the month of September it bears sweetish tasted berries, of a purple color, which are powerfully narcotic, and from their resemblance to cherries, children are sometimes tempted to eat them, and death is not unfrequently the consequence. The symptoms arising from eating the berries are delirium, accompanied by violent laughter and various gestures, as if the individual were grasping at imaginary objects; the eyes are red, and appear as if they protruded from their orbits, and the pupils are dilated and immovable. These symptoms are soon followed, when the case terminates fatally, by loss of voice, difficulty in swallowing, and convulsions. This poison has the effect of paralysing the stomach, so that emetics are rarely found to act; it is advisable, however, in the first instance, to give three grains of tartar emetic, or twenty-five to thirty grains of sulphate of zinc, (white vitriol,) or six grains of sulphate of copper, (blue vitriol,) in a little water; but the only way which can be trusted to of emptying the stomach is by means of the stomach pump. The best antidotes are strong coffee and the effusion of cold water on the head and body.

We are indebted to the German physicians for knowledge of the medicinal virtues of this plant.

Narcotic. Used in neuralgia, convulsions, epilepsy, rheumatism, dropsy, jaundice, and in a large number of nervous diseases. It is a medicine of great value, if judiciously used. Dose, one grain of the powdered leaves, once a day, and increased gradually. Dose of the extract, half a grain to two grains.

BLACK HENBANE. *Bot. name, Hyoscyamus niger*.

A narcotic, acting occasionally upon the skin or kidneys, and bowels. Used in all kinds of nervous and painful diseases, in chronic rheumatism, chronic coughs, in hysterics, and in short, in every kind of case in which opium is employed. It is not so potent as opium, and it is sometimes borne

when opium cannot be tolerated. Dose of powdered leaves, five to ten grains. Dose of the tincture is a teaspoonful for ordinary effects.

OPIUM.

Opium is the concreted juice of the capsule or head of the white poppy.

Opium renders the pulse fuller, stronger and quicker. The latter action, however, is not always produced. For example: when the pulse is quick and frequent, in consequence of debility, opium makes it slower and more regular, and strong doses render it even slow, and similar to that which is met with in apoplexy. A moderate dose taken when in a state of health always slightly accelerates the pulse.

Opium, besides the property which it possesses of increasing the action of the heart and the fullness and frequency of the pulse, exerts a powerful influence as a narcotic, that is, in diminishing the sensibility of the nervous system, allaying pain, and procuring sleep. But when the pulse is hard, the skin hot and dry, and other feverish symptoms are present, or when we have reason to believe that inflammation is commencing, it would be improper to administer opium as a narcotic, because its primary stimulating action would certainly aggravate the symptoms.

Two or three grains of opium, introduced into the rectum, are very efficacious in relieving tenesmus, "an urgent, distressing, and almost painful sensation, as if a discharge from the intestines must take place immediately; always referred to the lower part of the rectum," spasmodic stricture, and in alleviating the pain arising from cancer of the womb.

BROMIDE OF POTASSIUM. *Potassii bromidum.*

One of the most useful sedatives when its employment is indicated. When given, produces a condition of universal depression, failure of the circulation, lowering of the temperature, and finally death from asphyxia, or exhaustion. This series of phenomena is known as *bromism*. It seems to be proved that the bromide affects the whole nervous system. It is probably eliminated with all the secretions, having been found in the urine, sweat, saliva and the intestinal mucus. It is chiefly valuable for quieting non-inflammatory excitement; in general nervous excitement or unrest, in delirium tremens, and in various forms of irritation, of the genital organs it is of great service. Dose: it is given dissolved in water, in doses of twenty grains to one drachm, three times a day. In some cases much larger amounts are required. The ointment may be made by mixing from one scruple to two drachms of the bromide to one ounce of lard. Of this from half to one drachm may be rubbed on the serofulous tumor, or other part where its local action is desired, once in twenty-four hours.

ANTISPASMODICS.

ASSAFÆTIDA.

A gum resin obtained from the root of the plant *Narthex assafœtida*.

This medicine is principally used as an antispasmodic in doses of five grains to twenty. It is useful in allaying inordinate muscular action in asthma, whooping-cough, colic, and hysterical affections; and is given to promote expectoration in long continued cough, particularly in those of old people with debilitated constitutions. When there is any inflammatory



Hydrangea.



Poke Berry.



Black Henbane.

action going on it ought not to be administered, on account of its stimulating and heating properties. In flatulent colic it is often of the greatest service when given as a clyster; when used in this manner, a drachm to two drachms should be dissolved in a pint of warm milk, or linseed tea.

The action of the tincture of assafoetida is quicker than that of the gum; and should be given in the quantity of one or two drachms.

Take of assafoetida,	. . . . .	1 drachm.
Peppermint water,	. . . . .	3 ounces.
Dissolve and add:		

Ammoniated tincture of valerian,	. . . . .	2 drachms.
Tincture of castor,	. . . . .	3 "
Sulphuric ether,	. . . . .	1 drachm.
Mix.		

Dose: a tablespoonful (with plenty of water,) every second hour.

In *hysterics*:

Take of assafoetida,	. . . . .	1 drachm.
Soap,	. . . . .	10 grains.
Water, sufficient, and make twenty pills.		

Dose: one or two, three times a day.

Take assafoetida, three parts; gum ammoniac, two parts; camphor, one part. Beat them well together, and, with as much syrup as is necessary, make into pills of the size of a common pea. From three to five may be taken at a dose, and repeated as often as they may be found necessary; not, however, exceeding three or four doses in a day. This is a powerful antispasmodic, and very useful in all nervous and hysterical complaints. When it is wished to render the mass purgative, which is generally proper, add as much socotorine aloes as of camphor.

COLUMBO. Root of (*Cocculus palmatus*).

Frequently administered with other tonics. It has long been esteemed a powerful antiseptic and tonic; and, as such, has been employed with manifest advantage in gangrene, cholera morbus, bilious vomiting, bilious fever, indigestion, want of appetite, etc. It may be given in powder, in doses of a small teaspoonful every three or four hours, or in decoction, in doses of a teacupful. Two or three ounces of the root, steeped in a quart of spirits, form an excellent bitter, which, when taken in mint water, or infusion of orange peel, in doses of a tablespoonful, is excellent for moderating the retching in pregnant women.

Take of camphor,	. . . . .	10 grains.
Tincture of columbo,	. . . . .	3 drachms.
Spirit of aniseed,	. . . . .	3 drachms.
Spearmint water,	. . . . .	10 drachms.

Rub the camphor with the tincture and spirit, then gradually add the water. One half to be taken at bed time, when there is much fidgety nervousness in those who are feeble.

ANISE. *Bot. name, pimpinella anisum.* The seed of the plant.

Anise is a grateful aromatic carminative, and like several other fruits of a similar character, is supposed to have the property of increasing the secretion of milk.

VALERIAN. *Bot. name, Valeriana officinal.*

The root of the plant. Gently stimulant antispasmodic. Used in hysterics, epilepsy, and low fevers in which there is great nervous disturbance. Dose of powder, from thirty to sixty grains. It is often administered in the tincture, the dose of which is one to four teaspoonsful. In some cases the quantity of spirit may be an objection to the use of the tincture, when an infusion may be employed in preference.

Take of aniseed-water,	. . . . .	2 ounces.
Ammoniated tincture of valerian,	. . . . .	30 drops.
Spirit of sulphuric ether,	. . . . .	1 drachm.
Mix.		

Take one half of this for a dose, and repeat it two or three times a day in hysterics, epilepsy, etc.

Take of infusion of valerian,	. . . . .	11 drachms.
Fœtid spirit of ammonia,	. . . . .	$\frac{1}{2}$ drachm.
Tincture of castor,	. . . . .	$\frac{1}{2}$ drachm.
Mix.		

Take all at a draught, two or three times a day, a short time before an anticipated attack of epilepsy.

Take of sulphuric ether,	. . . . .	$\frac{1}{2}$ drachm.
Tincture of valerian,	. . . . .	1 drachm. .
Solution of caustic ammonia,	. . . . .	20 drops.
Water,	. . . . .	1 ounce.
Mix.		

To prevent an epileptic fit, it must be taken just before its occurrence.

NITRATE OF AMYL.

This substance has been lately included in the British Pharmacopœia.

The chief indication is to relax spasm. Owing to its excessive volatility and the ease with which it is absorbed, nitrite of amyl acts with great quickness upon the organism. A disease, probably associated with vaso-motor spasm, but whose pathology is not established, in which experience has demonstrated the extreme value of nitrate of amyl in angina pectoris. In asthma the relief is often immediate, in convulsions after labor the nitrite affords relief. Nitrite is usually administered by inhalation, in doses of from three drops. Begin with three drops on a handkerchief, gradually increase as needed. The handkerchief should always be withdrawn, as soon as the face flushes, or the heart begins to become excited, as the effects always increase, for some time, even if no more be inhaled.

The drug may also be given by the mouth, in doses of three to five drops, in sugar, or dissolved in alcohol.

MYDRIATICS.

Belladonna and hyoseyamus are both powerful *mydriatics*. For their other uses, see description under other classes of this *materia medica* chapter.

YELLOW JASMINE. *Bot. name, Gelsemium.*

The root of the plant. Produces relaxation of muscles with pleasant sensations of languor, without stupor or delirium. Is a powerful mydriatic, producing extreme dilatation of the pupil, either by internal doses, or direct application to the eye. Its use should be chiefly restricted to spasmodic and neuralgic affections; and may be used as an adjuvant to quinine in remittent fever.

Dose of the tincture,	.	.	.	.	.	5 minims.
" " fluid extract,	.	.	.	.	.	1 minim.

Repeated every two, four or six hours, till the object is attained.

ANÆSTHETICS.

CHLOROFORM. (*Chloroformum*).

Chloroform is a heavy, clear, colorless liquid, of a characteristic, pleasant, ethereal odor, a burning, sweet taste, and a neutral reaction.

When applied locally it is very irritant, and produces decided pain, which may be followed by some numbness and local anaesthesia. Taken into the stomach it is absorbed and acts upon the general system.

In midwifery, chloroform is believed to be safer than in surgery, and its use is very extensive.

Dose for inhalation, 1 fluid drachm, or more to be repeated in two minutes, if the desired effect should fail to be produced. Should in no case be given except under the direction of a competent physician.

ETHER.

The employment of ether for prevention and removal of pain, has spread throughout the civilized world. The effect produced, called etherization, is usefully resorted to in all severe operations, not merely for the prevention of pain, but also of the shock which the system would otherwise suffer as a consequence of the pain, and also as a means of producing muscular relaxation in dislocation, strangulated hernias, etc. Used in asthma and chronic bronchitis as an antispasmodic and expectorant. Employed extensively in midwifery, and also in vivisections. Should be inhaled through the nose, by means of a small sponge hollowed out to receive the projection of the nose. To lessen the gastric disturbance no fluid should be allowed for some hours before etherization, and a moderate dose of brandy or whiskey should be administered at the beginning of the latter process. In a few instances it has produced alarming remote effects. Sometimes death has ensued. But the instances are extremely rare, in which a fatal result could be clearly traced to the direct influence of ether.

ALTERATIVES, EMETICS, APERIENTS, CATHARTICS.

SARSAPARILLA. *Bot. name, Smilax sarsaparilla.*

Grows in several parts of the United States. It is a small vine resembling a bramble.

In the broken down state of the constitution which has arisen from long protracted syphilis, or from mercurial irritation, the compound decoction of sarsaparilla, prepared in the following manner is generally considered an excellent restorative, at least it is very extensively employed. Take of sarsaparilla, sliced, five ounces; boiling water, four pints; macerate for four hours, in a vessel lightly covered, near the fire, then take out and bruise the sarsaparilla. When bruised, return it to the liquor, and again macerate in the same manner for two hours; afterwards boil down to nearly two pints; then add sassafras, sliced, guaiacum wood shavings, and liquorice bruised; of each five drachms; mezereon, a drachm and a half; boil the whole for a quarter of an hour, and strain. A pint of this decoction must be taken in the course of the day. The powdered root may be taken to the extent of an ounce, in divided doses during the day. In whatever manner sarsaparilla is taken, it must be continued regularly during several weeks.

SASSAFRAS. *Bot. name, Laurus sassafras.*

An infusion or tea of the flowers or bark of the root has often been successfully given as a purifier of the blood, in scorbutic, venereal, and cutaneous disorders, or where an acrimony of the fluid prevails. Conjoined with bark of dogwood, cherry tree, or oak, it is very useful in obstinate intermittents. The oil externally applied in chronic rheumatism, and also in wens, has oftentimes proved salutary. The pith of the small twigs, in water, forms a mucilage of excellent use for sore eyes, and as an injection in the incipient stage of gonorrhœa. It also affords, when sweetened, with the addition of nutmeg, a palatable jelly, useful in dysentery and febrile disease.

BURDOCK. *Bot. name, Aretium Lappa.*

Grows on the roadside, on rubbish and ditch banks, bearing purplish blossoms in July and August.

The juice of the fresh leaves, or an infusion or decoction of the roots, operates gently on the bowels. This is supposed to be a good blood-purifier, and is much used for that purpose. The juice is given in doses of a wine-glassful, and the decoction half a pint three times a day.

Wild cherry bark, elecampane root, and burdock root, each one ounce; good spirits, one quart. Let it stand forty-eight hours; then strain and add one pound of coarse-grained cane sugar, and heat until it dissolves. Dose, a tablespoonful for a child two or three years old.

POKE BERRY. *Bot. name, Phytolacca bacca.*

An emetic, in large doses. Used chiefly in chronic rheumatism, for which it has a high character. Generally administered in tincture, made by saturating brandy with the berries. Dose: a teaspoonful thrice daily. Poke berries have also been used externally as an ointment in piles, and diseases of the skin.

SODA, MURIATE OF. *Table salt.*

Mild stimulant to the stomach in moderate doses, in larger, it causes cathartic effects, and in still larger, it acts as an emetic. It is only for this latter purpose that it is used as a medicine. Dose, one to two tablespoonfuls in a tumbler of water. It may be properly employed to excite vomiting in cases of narcotic poisoning, and in cholera, etc.

IPECAC. *Ipecacuanha.*

Ipecacuan is well known as a mild and efficacious emetic, given in powder, in the dose of fifteen to thirty grains, mixed with a little warm water; or ten grains combined with one grain of tartar emetic. Wine of ipecacuan, is well adapted for diseases of children, where emetics are desirable. Dose, one or two teaspoonfuls, repeated at intervals of a quarter of an hour, until vomiting is produced.

In small doses it is expectorant.

TARTAR EMETIC. *Tartrate of antimony.*

Of all the preparations of antimony this is the most to be depended on, and when given in appropriate doses is capable of fulfilling every purpose for which antimonial remedies are employed. Its action varies according to the dose, and state of the system at the time of administration. In doses of three or four grains it acts powerfully as an emetic, and the safest plan of exhibiting it with this intention, is by dissolving three or four grains in half a teacupful of water, and giving a tablespoonful of the solution every ten minutes until free vomiting takes place. When necessary to excite vomiting in very young children, ipecacuan, a safer emetic and less harsh is generally preferred; and in cases of poisoning the sulphate of zinc (white vitriol) is a more suitable emetic, because it acts more quickly and with greater certainty.

SUBLIMED SULPUR. *Sulphur sublimatum.*

Sublimed sulphur, commonly called the flowers of sulphur, acts as a mild aperient and laxative and promotes the insensible perspiration.

Equal parts of sulphur and magnesia (fifteen grains or a scruple of each) taken every night at bed time affords great relief in piles.

This remedy, has long been celebrated for its power of curing the itch and other diseases of the skin. When taken alone for some time it produces a slight degree of feverish excitement, hence its use should be discontinued occasionally, and a seidlitz powder or some other saline medicine administered. The dose as a laxative, is one or two drachms in milk, or mixed with molasses, jelly, or some kind of conserve.

MANNA.

The concrete saccharine exudation of the manna plant (*Fraxinus ornus*).

The dose is from one to two ounces, not to be depended on as a purgative for adults, hence, it is generally used in combination with the infusion of senna leaves, the bitter taste of which it tends in a great measure to conceal. From the mildness of its operation it is well suited for children, in the dose of from ten to sixty grains in whey.

CREAM OF TARTAR. *Bitartrate of potassium.*

During the fermentations of wines a peculiar matter is deposited in the casks called *argal*. This substance is a mild aperient, and refrigerant. Its



Pink root.



Virginia Snake-root.



Dandelion.



Wood sorrel

solution in boiling water, sweetened and allowed to cool forms an acid, not unpleasant refrigerant drink, advantageously used in some febrile affections.

SEIDLITZ POWDER.

The best known and most useful of mild laxatives may be made at home as follows:

Rochelle salts, 3 ounces.
Bicarbonate of soda, 2 ounces.
Mix thoroughly, divide into twelve powders. Fold in blue papers.

Tartaric acid, 7 drachms.
Divide in twelve equal parts. Fold in white papers.

PARSLEY ROOT. *Bot. name, Petroselinum sativum.*

Aperient and diuretic. Used in affections of the kidneys, and dropsy. It is well spoken of by high authorities. It is administered in infusion. Two ounces may be added to one pint of boiling water, and allowed to stand for two or three hours. Dose, two to four table-spoonfuls.

SCURVY GRASS. *Bot. name, Cochlearia officinalis.*

Gently stimulant, aperient and diuretic. Used in sea scurvy, chronic rheumatism, etc. It may be eaten as a salad, or it may be administered in tinct., in the dose of thirty or forty drops several times a day.

MAY APPLE. *Bot. name, Podophyllum.*

May apple is an active cathartic. It acts much like jalap, and is generally used in the same manner, and for the same purposes. Dose of powder ten to twenty grains. An extract prepared from it possessing all its virtues in a smaller bulk but used almost exclusively under the name of *podophyllin*. In its present state, the dose as a laxative is from one-eighth to one-fourth of a grain, as a purgative from one-fourth to a half grain.

SCAMMONY. *Bot. name, Convolvulus scammonia.*

A gum resin from the plant.

Scammony in the dose of from five to fifteen grains acts as a strong purgative; it is frequently given with cream of tartar, in dropsy; and in combination with calomel and jalap to destroy worms, and to carry off slime from the bowels of children. It enters into the composition of many of the purgative pills in general use.

Should be given in emulsion with mucilage, sugar, almonds, liquorice, or other demulcents, and its disposition to gripe may be counteracted by the addition of an aromatic.

CASTOR OIL.

Castor oil is obtained from the seeds of the *Palma Christi*, a plant which grows in great abundance in nearly all warm climates. Cold-drawn castor oil is brought to this country from the East Indies. It is of a pale straw color, possesses very little smell, and its taste, though not strong is mawkish and disagreeable. The West India castor oil is of a darker color than the East India oil, has a disagreeable odor, and is apt to produce griping.

The best East India castor oil acts quickly as a mild purgative, seldom producing griping or constitutional disturbance; hence, it is considered the best purgative in all inflammatory affections of the bowels, in eolic, piles, the dry belly-ache of the West Indies, and habitual costiveness. There is no better laxative than this oil for children, and for females during pregnancy. When a person is in the habit of taking purgative medicine, it is in general found necessary to increase the dose; the reverse of this, however, is the case with castor oil, the doses of which may be gradually diminished, hence the advantage of it in the treatment of habitual costiveness. In the East Indies, it is used externally in the treatment of gout and rheumatism, by rubbing it into the parts affected, and then covering them with flannel. Various plans are adopted to cover its nauseous taste; some take it with warm milk, others prefer it floating in a little spirit. One of the best methods is to beat it up with the yolk of an egg, and then add gradually a little cinnamon or peppermint water, or a little plain water, with two teaspoonfuls of the tincture of cardamoms, to prevent sickness at stomach. It may be given to very young children in the dose of half a teaspoonful to two or more teaspoonfuls, according to the age. For a grown person the dose is one, two, or three tablespoonfuls.

ALOES. *Aloe.*

This medicine is an excellent purgative, and one of the most certain, in its action, we possess. It does not produce watery stools nor create wind in the bowels, rarely disagrees with the stomach, and when taken in small doses assists digestion. It is particularly useful in cases of habitual costiveness in connection with indigestion, and answers well with hypochondriacal people and those of sedentary habits; it is also serviceable when the constitution is sluggish or serofulous. Aloe when combined with myrrh and a preparation of iron, is beneficial in obstruction of the menses, and when given in conjunction with small doses of blue pill has been found one of the best medicines in jaundice.

It acts principally on the lower intestines and has a tendency to irritate them when given too frequently or in too large doses. Hence it ought not to be given to those who have piles, nor when there is inflammation of the bowels, and should be particularly avoided by females who are subject to immoderate flowing of the menses. It is improper when there is any disease of the womb, during pregnancy, and also during the period of the menstrual discharge. Aloe is usually given in the form of pills; the dose is from five to fifteen grains; it is, however, seldom taken alone. When intended to give tone to the digestive organs and also to open the bowels, the following form of combination, recommended by Professor A. T. Thompson, will be found one of the best.

Take of myrrh,	. . . . .	6 drachms.
Subcarbonate of soda,	. . . . .	3 ounces.
Ammonia,	. . . . .	4½ drachms.
Extract of aloe,	. . . . .	6 drachms.
Sherry wine,	. . . . .	24 ounces.
Macerate during seven days, and strain.		

Two or three tablespoonfuls of this mixture to be taken twice a day in the same quantity of a solution of extract of liquorice, (the common Spanish

liquorice dissolved in warm water,) which answers the purpose of concealing the taste of bitter medicines, better than anything else.

CALOMEL. *Mild chloride of mercury.*

A cathartic though seldom employed alone. It is the most valuable of the mercurial preparations. It stimulates the liver and every secreting organ in the body, and increases their action. It is preferred to all other preparations with the exception of the blue pill. It is useful in bilious fevers, jaundice, bilious colic, dysentery of hot climates, and, indeed, in nearly every disease in which there is a derangement of the secretions. Dose as a purgative from five to fifteen grains; to produce a constitutional effect, half a grain to a grain every night, followed in the morning by a gentle cathartic.

MERCURY, PILL OF. *Blue mass.*

This is one of the mildest preparations of mercury, and is commonly used to obtain the alterative effects. Dose: one pill of five grains, night and morning, with an occasional laxative.

SENNA. The leaflets of *Cassia acutifolia*, *Cassia obovata*, *Cynachum oleaefolium*.

It is a prompt, efficient, and very safe purgative, well calculated for fevers, and febrile complaints, and in other cases in which a decided but not violent impression is desired. As it has a tendency to gripe, some aromatic should always be added to it, and some one of the alkaline salts, especially bitartrate of potassium or sulphate of magnesium. The infusion is prepared by pouring two ounces of boiling water on two to four drachms of the leaves, and allow it to stand for thirty minutes. The whole for a dose. It may be sweetened with sugar if desired.

RHUBARB. The root of *Rheum officinalis*.

Tonic, cathartic, and astringent. This is one of the best cathartics when the bowels are in a debilitated condition, but from its astringency it is calculated to induce constipation; for this reason it is often useful in diarrhoeas that are caused by irritating matter in the intestines, and is highly serviceable in the bowel affections of infancy and early childhood. It is generally given in combination with other medicines, as calomel, aloes, magnesia, etc. In fevers it is inferior to other cathartics, unless in the advanced stages, when the system is much reduced. Dose, twenty to thirty grains as a purgative; as a laxative, five to ten. For infants the syrup may be used, the dose of which is a teaspoonful or two.

MEADOW SAFFRON. *Colchicum autumnal*.

There is no better remedy in gout, rheumatism, and some other inflammatory diseases, than the root and seeds of this plant. When given in moderate doses it soothes the pain, and lowers the pulse without acting as an evacuant; but is an active purgative in large doses. It is a mistake to suppose that this remedy does no good unless it purges. The best manner of administering it is in doses suited to the urgency of the case, so as to produce its sedative or soothing effects without bringing on much purging or nausea. In very severe cases, it is proper to draw blood before using colchicum; but, in general, this is not necessary; it should always, how-

ever, be preceded by a purgative of calomel and jalap or colocynth.

The dose of the powdered root, in acute cases, is five or six grains every four hours, or oftener, until slight purging is produced; the doses then are to be gradually diminished. The dose of the tincture of the seeds is twenty drops in a little water, to be repeated every four hours, or at longer or shorter intervals, according to its effects.

EPSOM SALTS. *Sulphate of magnesia.*

Epsom salt is a well known and very excellent purgative. In the dose of from two teaspoonfuls to an ounce, dissolved in half a pint of warm water, and taken when tepid, it acts freely, without griping. To prevent this salt from causing sickness at stomach, it may be taken in an infusion of orange peel, or any other aromatic or bitter infusion, to which two teaspoonfuls of tincture of rhubarb may be added. It quickens considerably the action of senna leaves; hence it is frequently given in the form of the black draught.

Oxalic acid has a strong resemblance to epsom salt, and has frequently been mistaken for it; the former, however, may easily be known by its acid taste, when mixed with water, and by changing the color of blue paper to red. The antidotes against oxalic acid are powdered chalk or magnesia, followed by hot brandy and water, with small doses of laudanum.

CROTON OIL. *Oleum tiglii.*

A fixed oil expressed from the seed of *Croton tiglium*.

A powerful drastic purgative, in large doses apt to excite vomiting and severe griping pains, and capable, if immediately taken, of producing fatal effects. It acts with great rapidity, frequently evacuating the bowels in less than an hour, and generally exciting a rumbling sensation in half that period. It possesses great advantage in the minuteness of the dose, on account of which it may frequently be given, when we should fail with more bulky medicines; as in mania, comâ, and the cases of children.

Dose for an adult one or two drops most conveniently administered in the form of pill. A safe and convenient plan is to make two drops into four pills, with crumbs of bread, and give one every hour till they operate. The oil may also be given in emulsion. The form of the tincture may be advantageously resorted to, when a minute quantity of the medicine is required; as it affords the means of readily dividing the dose.

DIURETICS AND ANTILITHICS.

DANDELION. *Bot. name, Leontodon tarazacum. Diuretic and laxative.*

This is a very common and well known plant; the preparation directed in the pharmacopœa is the extract of dandelion. It is sometimes given on account of the bitter principle which it contains, as a tonic in indigestion, and, from its diuretic virtue, is occasionally administered in dropsical affections, along with more active remedies. This plant is said to have been of great service in jaundice and in chronic inflammation of the liver, and of the lining membrane of the stomach. It promotes the secretion of bile. It is usually given in decoction. Two ounces of fresh, or one ounce of dried root, sliced, is to be boiled with a pint of water down to half a pint. Dose: four tablespoonfuls three times a day.

FLEABANE. *Bot. name, Erigeron anserum,*

A diuretic. Used in dropsy. Highly esteemed by some practitioners. Administered in decoction, made by boiling one ounce in a pint of water. Dose, a wineglassful every three hours.

CUBEBS. *Bot. name, Cubeba officinalis.*

Stimulant and diuretic. Used in diseases of the urinary organs. Dose, in powder, one to three drachms, repeated four times a day.

CARROT. *Bot. name, Duncus carota.*

Stimulant and diuretic. Used in affections of the kidneys and dropsy. Generally given in infusion, which is made by taking an ounce of the seeds or root, and infusing in a pint of boiling water. Dose, a pint during the day.

Carrots are also much used in poultices in foul ulcers, the fetor which they are thought to correct.

LIVERWORT. *Bot. name, Hyptica.*

Mild tonic, astringent, and diuretic. Much used in bleeding from the lungs, cough, and liver complaints. It may be drank in infusion, in a quantity as a common beverage,

JUNIPER BERRIES. *Bot. name, Junipesus communis.*

Stimulant and diuretic. Used in dropsy, disease of the bladder, and diseases of the skin. Best given in infusion, which is made by pouring a pint of boiling water on an ounce of the bruised berries.

WINTERGREEN. *Bot. name, Chimaphila umbellata.*

Diuretic, astringent, and tonic. Used in dropsy, and affections of the kidneys and gravel, scrofula, ulcers, and diseases of the skin. It is a very popular remedy, and is much employed in all empirical preparations recommended for diseases of the blood. Its flavor is particularly pleasant. The decoction is made by boiling two ounces of fresh leaves with three pints of water down to a quart. Dose, a teacupful three times a day.

It is best administered in the form of the officinal fluid extract, which may readily be made into a syrup. Dose, two fluid drachms, three or four times a day.

VIOLETS. *Bot. name, Viola tricolor.*

The herbaceous part of different species of violet, are mucilaginous, emollient, and slightly laxative.

They are diuretic, and have been successfully used in diseases of the lungs, kidneys, and skin, and some of the varieties are thought to possess remarkable virtue in gravel complaints. They may be administered in the shape of an infusion, made by adding a pint of hot water to an ounce of the herb. Dose, two to four tablespoonfuls, three times a day.

VIRGINIA SNAKEROOT. *Bot. name, Aristolochia serpentaria.*

A stimulant, tonic, diaphoretic or diuretic, according to the mode of its application.

It has an aromatic smell, and a warm, bitterish, pungent tast. It promotes perspiration, raises the pulse, and resists putrefaction. Hence, it is



Poison Hemlock.



Foxglove.



Deadly Nightshade.



Hyssop.

especially adapted to the low or advanced stage of typhus or nervous fever. It may be given in the form of infusion or tea, a handful to a quart of boiling water, in doses of a teacupful; or in powder, from ten to thirty grains every two or three hours. Conjoined with the Peruvian bark, or any of its substitutes, it is an admirable remedy in obstinate cases of the ague and fever, and other disorders of general weakness. In cold phlegmatic habits, it has also been exhibited in the form of tincture, and when united with double the quantity of dog wood bark, or berries, it affords a good bitter.

BROOM. The tops of *Sarothamnus scoparius*.

Broom is diuretic and cathartic, and in large doses emetic; and has been employed with advantage in dropsical complaints.

In the form of decoction by boiling half an ounce of the fresh tops in a pint of water down to half a pint. Dose, one fluid drachm every hour till it operates by stool or urine. Seeds given in powder in the dose ten or fifteen grains.

BALSAM OF COPAIBA. *Bot. name, Copaifera officinalis.*

Stimulant, diuretic and laxative. Used with advantage in whites, gleet, chronic dysentery, chronic coughs, chronic inflammation of the bladder, and especially in gonorrhœa. Dose, twenty to thirty drops, three times a day. It is very nauseous, and therefore is best mixed with gum mucilage and aromatic water to conceal, as much as possible, its taste.

OIL OF JUNIPER.

Stimulant and diuretic. This oil is used sometimes, in connection with other medicines, in dropsies of debilitated subjects. Dose, five to fifteen drops, three times a day.

HYDRANGEA. *Bot. name, Hydrangea arborescens.*

The root is used. Of great advantage in calculus complaints. Used in the form of a decoction or of a syrup made from the decoction of sugar or honey. A strong syrup may be given in the dose of a teaspoonful three times a day.

SOLUTION OF POTASSA. *Liquor potassæ.*

Antacid, diuretic and antilithic. Dose, from ten to thirty minims, repeated two or three times a day. Given in water or some mucilaginous fluid.

DIAPHORETICS, SUDORIFICS, REFRIGERANTS AND EXPECTORANTS.

HOLLY. *Bot. name, Ilex aquifolium.*

The leaves are used in the form of infusion. Esteemed as a diaphoretic.

The berries are about the size of a pea, red, and bitter; and said to be purgative, emetic and diuretic. Their expressed juice has been used in jaundice.

AMMONIA ACETATE. *Solution of Spirit of mindererus.*

A diaphoretic, employed very generally in febrile and inflammatory affections. Dose, half an ounce to two ounces, repeated every six hours. Commonly added to mixtures.

STRAMONIUM. *Bot. name, Datura stramonium. (Jamestown weed).*

Known by the name of thorn apple. When taken either in large or small doses, produces symptoms which are precisely similar to those caused by belladonna. In spasmodic asthma, it has acquired considerable reputation. The alcoholic extract is almost exclusively used, the dose being half a grain. A tincture and fluid extract are also used. The dose should be gradually increased, till the narcotic operation becomes evident, or relief from the symptoms of the disease is obtained. Fifteen or twenty grains of the powdered leaves, and a proportionate amount of the other preparations has often been given daily.

CUCUMBER TREE. *Magnolia.*

Gently stimulant, aromatic, tonic, and diaphoretic. Used in chronic rheumatism, and in ague. Dose, in powder, half a drachm to one drachm.

BONESET. *Thoroughwort.*

Diaphoretic and tonic. Used in ague, dyspepsia, and general debility. Dose, twenty grains in powder, three times a day, or it may be given in infusion. Infuse one ounce in a pint of hot water. Dose, three or four tablespoonfuls.

GUAIACUM WOOD. *Bot. name, Guaiacum officinale.*

Stimulant and diaphoretic. Used much in rheumatism, gout, secondary syphilis, scrofula, cutaneous eruptions, and in suppressed menstruation. Dose, in powder, ten to thirty grains; of the tincture, one to three teaspoonfuls.

ELDER BERRIES. *Bot. name, Sambucus Canadensis.*

Diaphoretic and aperient. Used in gouty, rheumatic and eruptive diseases. Dose, of the dried juic, from one drachm to half an ounce.

ELECAMPANE ROOT. Root of *Inula helenium.*

Tonic, stimulant and diaphoretic. Much used formerly in suppressed menstruation, and is now often employed in diseases of the skin. Dose, of the powder, is one scruple to one drachm. The decoction is made by boiling half an ounce in a pint of water, the dose of which is two to four tablespoonfuls, three times a day.

INDIAN TOBACCO *Lobelia.*

Emetic, diaphoretic, expectorant and sometimes cathartic. It has been much used in coughs, asthma, whooping cough, and in the latter stages of croup. Dose, of the powder, five to twenty grains. It is seldom given in this form, the tincture being much more agreeable. This is made by taking four ounces of lobelia, and two pints of diluted alcohol, leaving them to stand together fourteen days, and then straining. Dose, thirty drops to two teaspoonfuls, every three or four hours.

SWEET SPTS. OF NITRE. *Ether nitrosi.*

Sweet spirit of nitre is obtained by distilling alcohol and nitrous acid; it is an excellent sudorific in the dose of one and a half or two drachms, given with a basin of warm gruel, or some other warm drink at bed time.

When taken in this manner at the commencement of a common cold, it

generally succeeds in arresting the progress of the disorder. This medicine also acts as a diuretic when given in smaller doses frequently repeated, mixed with cold water; but is more frequently used to correct or promote the action of more powerful diuretics in dropsy.

MINDERERUS' SPIRIT.

Mindererus' spirit, or solution of acetate of ammonia, is much employed as a sudorific, *i. e.*, a medicine producing sweat. It promotes perspiration, without quickening the circulation, or increasing the heat of the body; hence it is given in fever, acute rheumatism, and other inflammatory disorders, where stimulating sudorifics are inadmissible. The dose is one or two tablespoonfuls, every two or three hours, warm barley water, or some other mild beverage, being taken freely to promote its operation. It is usually taken in combination with nitre and the preparations of antimony.

DOVER'S POWDER.

Dover's powder is composed of one grain of opium, one grain of ipecacuan, and eight grains of the sulphate of potash. This celebrated powder was discovered by Dr. Dover, a physician of considerable reputation in the reign of George II., and was long in general use before it received a place in the pharmacopœa. It is more to be depended upon as a sudorific than any other remedy of the same class, and is much used in rheumatism, general dropsy, catarrh, dysentery, and indeed whenever it is necessary to bring on profuse perspiration. Opium alone, in inflammatory diseases, would do mischief; whereas, when given in this combination, in cases where sweating is indicated, it often produces the very best effects.

PLEURISY ROOT. *Bot. name, Asclepius tuberosa.*

Expectorant and diaphoretic. It is much used in some parts of the country in common colds, pleurisy, consumption, and other affections of the lungs; also in rheumatism, in dysentery, flatulence and indigestion.

Decoction, made by boiling one ounce in a quart of water; a teacupful every two or three hours till it operates.

AMMONIAC GUM.

The gum resin of ammoniacum. Stimulant and expectorant. Used in chronic catarrh, asthma and other affections of the lungs. Dose, two to thirty grains, three or four times a day. It is commonly administered as an emulsion.

SENEGA SNAKEROOT. The root of *Polygala senega*.

Stimulating expectorant, and diaphoretic. It is much used in affections of the lungs, and, in large doses, it has been successful in rheumatism. Dose, of the powder is ten to twenty grains, but it is usually given in decoction or prepared as a syrup, with squills and antimony. To make the decoction, take bruised senega, one ounce; water, two pints; boil down to a pint and strain. Liquorice root may be added before boiling to improve the taste. Dose, four tablespoonfuls three times a day.

ICELAND MOSS. *Bot. name, Lichen Islandicus.*

An infusion, a handful to a quart of boiling water, used as a common drink, or a strong decoction formed into syrup, with honey or sugar, may

be taken in doses of a wineglassful three or four times a day. It is also said to be a useful medicine in whooping cough.

HYSSOP. *Bot. name, Hyssopus officinalis.*

Is cultivated in our gardens. An infusion of the leaves, sweetened with honey, or in the form of syrup, is useful in humoral asthma, coughs, and other disorders of the breast and lungs, accompanied with inflammatory symptoms.

TULIP TREE. *Bot. name, Liriodendron.*

Diaphoretic and tonic. Used as a substitute for Peruvian bark in ague, in chronic rheumatism, and dyspepsia. Dose of bark in powder, half a drachm, three times or oftener in a day. A saturated tincture may be made, the dose of which will be a teaspoonful.

EMMENAGOGUES.

BLOODROOT. *Sanguinaria.*

Expectorant and said to be emmenagogue. Snuffed up the nostrils, excites much irritation, attended with sneezing.

Upon fungus surface, it acts as an escharotic. It has been used in various diseases, but is at present very rarely employed, except as a stimulant expectorant, in chronic bronchitis, or in the advanced stages of the acute disorder. Expectorant dose, one to five grains, repeated more or less frequently according to the effect desired. The officinal tincture is better than the crude drug. The powder is useful as an errhine in coryza, combined with cloves and camphor.

ANEMONE. *Bot. name, Anemone pulsatilla.*

Supposed to exert emmenagogue properties, and to exert alterative influence over the mucus membranes, rendering it useful in ophthalmia, in catarrhal inflammation of the nostrils, throat and respiratory passages, and similar conditions of the alimentary canal and urinary organs.

Extract of the herbaceous part of the plant, given in the dose of one or two grains daily, gradually increasing to twenty grains or more.

Aloes, assafoetida and pennyroyal, rue, iron and black hellebore also have the emmenagogue properties.

REFRIGERANTS.

NITRE. *Nitrate of potash. Saltpetre.*

An excellent medicine to abate heat, and is used for this purpose in all inflammatory diseases and hemorrhages.

Given in small and frequently repeated doses, to the extent of a drachm, or eighty grains, in the course of twenty-four hours, in cold water, toast water, or barley water, (each dose being dissolved at the time it is administered,) it diminishes the strength and frequency of the pulse, while it lowers the animal heat, and abates thirst, and is consequently regarded of great value. Nitre is sometimes given as a diuretic in dropsical cases; and in proportion of one and a half drachms to half a pound of water, is frequently prescribed as a gargle in different kinds of sore throat.

Five ounces of nitre, with five ounces of sal. ammoniac (muriate of am-

monia) dissolved in sixteen ounces of water, will reduce the temperature of the liquid fourty degrees. Hence this mixture placed in a bladder is used as an external application, in various cases; to the head in inflammation of the brain and apoplexy, to the lower part of the belly in some cases of retention of the urine, to the belly in violent floodings; and to hernial tumors (when ice cannot be obtained) to diminish their size and facilitate their reduction.

WOOD SORREL. *Bot. name, Oxalis antosella.*

Wood sorrel is without smell, and has an agreeable sour taste. Its infusion, or whey made by boiling it in milk, may be used as a pleasant drink in febrile and inflammatory affections. It has recently been recommended by W. H. Taylor, as extraordinarily efficacious in scurvy, having effected cures in that complaint after lemon juice had failed. The salt used contained an excess of oxalic acid. Four grains given three times a day. The fresh plant, eaten raw, is said to be useful in scurvy.

VINEGAR. *Acetum.*

A refrigerant and diuretic. It is sometimes administered in those affections of the urinary organs, in which there is a white deposit in the urine, caused by phosphatic salts. Employed as a lotion, externally in bruises and sprains. Dose, one to four teaspoonfuls in a little water.

NITRIC ACID.

Refrigerant or cooling, like lemon juice. To prepare a solution of the strength of lemon juice, eight and a half drachms are to be dissolved in sixteen ounces of water. It is employed to form effervescing draughts. Dose a tablespoonful of lemon juice, or an equivalent solution citric acid.

ACID MURIATIC, diluted, or *Hydrochloric acid.*

A refrigerant, and preventive of putrescency. Employed in low fevers, malignant scarlet fever, when there is gangrenous ulceration of throat, in debility of the digestive organs, when there is a tendency to produce worms, etc. Dose, twenty to forty drops, largely diluted water, or an infusion of quassia.

ANTACIDS.

SODA.

The carbonate of soda is sometimes used in preference to the carbonate of potash, in the preparation of effervescing draughts.

The dose is from fifteen grains to a drachm in water twice a day.

The borate of soda, or borax, is seldom used internally. A drachm of this salt powdered, and mixed with an ounce of clarified honey, forms a useful local application to the sore mouths of children. The following mixture is very serviceable as a cooling gargle in common sore throat, and as a wash for the mouth where profuse salivation has been produced by the inordinate use of mercury.

Borax, in powder,	.	.	.	.	.	.	6 drachms.
Rose water,	.	.	.	.	.	.	8 ounces.
Tincture of myrrh,	.	.	.	.	.	.	2 drachms.
Honey,	.	.	.	.	.	.	a teaspoonful.
Mix.							

MAGNESIA.

This substance, from the property it possesses of neutralizing the acid which forms in the stomach, is much used to relieve heartburn. Calcinced magnesia is in common use as a purgative, in the dose of a teaspoonful. From the mildness of its action, it is more especially useful in cases of piles, stricture of the rectum, etc., and being also insipid, is well adapted for children. It diminishes the secretion of the lithic acid by the kidneys, and is therefore a useful remedy in red gravel, in doses of from twenty to thirty grains twice a day.

Magnesia is the best antidote in cases of poisoning by the mineral acids.

MAGNESIA, CARBONATE OF.

An antacid. Used in sour stomach. By combining with the acid in the stomach it is slightly purgative. Dose, half a drachm to two drachms, mixed with milk or water, and a little syrup.

MAGNESIA, CALCINED.

This is used for the same purposes and in the same manner as the carbonate of magnesia.

CHALK, PREPARED.

An antacid. Used to correct acidity of the stomach. It is commonly used in diarrhoea, in the form of mixture, when it is supposed an acid is causing the irritation. Dose of the powder, ten to forty grains. Dose of chalk mixture, a tablespoonful, often repeated.

AMMONIA, BICARBONATE OF.

An antacid. Used to neutralize acidity in the stomach. Free from the stimulating properties of carbonate of ammonia. Dose, five to twenty-five grains, dissolved in cold water, or bitter infusions. The carbonate of ammonia may be used for the same purpose, and in the same dose.

LIME.

There are several preparations of this alkali, employed in medicine. It is generally used to correct acidity of the stomach.

LIME WATER.

Antacid, tonic and astringent. Used in dyspepsia, with acidity of the stomach, diarrhoea, sick stomach, and externally as a wash to eruptions, foul ulcers, etc. When employed internally, it is best given combined with an equal quantity of milk, which quite conceals its disagreeable taste. Dose, two to four ounces, several times a day. For nausea, a tablespoonful mixed with milk, may be given every fifteen minutes.

LIME, CARBONATE OF.

An antacid. Nearly always given combined with other medicines. It is much used in chalk mixture. Dose, from ten grains to a drachm.

SODA, BICARBONATE OF.

An antacid. Used in gravel, when the deposit is red, and in acidity of the stomach. Dose, ten grains to one drachm, dissolved in a little water.

POTASII, BICARBONATE OF.

An antacid and diuretic. Used in acid stomach, in gravel and when the deposit is red sand. It is commonly used, also for making an effervescing draught. Dose, ten to forty grains.

RUBEFACIENTS AND EPISPASTICS.

CROWFOOT. *Bot. name, Ranunculus bulbosus. Buttercup.*

It is seldom used internally, though the juices of some species of *Ranunculus* are said to act as a powerful and prompt emetic.

A very acrid plant, growing in meadows and fields. The leaves or roots bruised and applied to any part of the body will soon raise a blister, and ought to be used when the Spanish flies cannot be obtained. The roots collected in the fall, may be very well preserved through the winter by burying them in some fine dry sand.

RUE. *Ruta.*

Has an ungrateful smell, and a pungent bitter taste. The leaves are acrid, and when applied to the skin are apt to produce blisters. Employed in the form of tea, they are reputed to be of great service to persons of cold phlegmatic habits. According to Boerhaave, an infusion of the leaves powerfully promotes perspiration, quickens the circulation, removes obstructions, and is particularly adapted to weak and hysterical constitutions, suffering from retarded or obstructed secretions.

RED PEPPER. *Bot. name, Capsicum annuum.*

Is cultivated in our gardens; it is a powerful stimulant, and has been found beneficial in chronic rheumatism. Those who are subject to flatulency will find benefit in using it. Steeped in spirits, applied warm to the extremities in chronic rheumatism, or low stages of nervous fever, when the circulation is languid, it has produced the most happy effects.

Used in dyspepsia, dependent on debility of the stomach. It is sometimes added to tonic medicines. Its most important application is in malignant sore throat and scarlet fever. The following is the formula as it is commonly administered in these cases. Two tablespoonfuls of the powdered pepper, and a teaspoonful of table salt are infused for an hour in one pint of equal parts of boiling water and vinegar. It is then to be strained. Dose, a tablespoonful every half hour. This infusion is also used as a gargle at the same time. Dose, of the powder is five to ten grains, given in pill.

Dr. Thompson says: "No other remedy has acted so well in my practice for allaying a tickling, harassing cough, whether from cold or asthma, as a weak solution of red pepper in cold water. Most persons make it too strong, and then it is apt to occasion dryness; but taken weak, and especially when sweetened with honey, it creates moisture and aids expectoration and wonderfully soothes the irritation which keeps up the cough.

RED CEDAR. *Bot. name, Juniperus Virginiana.*

Its most frequent use is in the composition of the cerate employed for keeping up the irritation and discharge of blisters. This preparation is the same with the savin cerate used in Europe, the leaves of the red cedar being

substituted for the savin. When properly prepared by boiling the fresh leaves for a short time in about twice their weight of lard, with the addition of a little wax, a cerate is formed, of peculiar efficacy as a perpetual epispastic. When applied as a dressing to a new vesicated surface, and afterwards repeated twice a day, it rarely fails to keep up the discharge for an indefinite length of time. Under its operation, the discharge usually changes from a serous to a puriform appearance, and concretes upon the surface; so that it requires to be moved from time to time, to admit the full action of the cerate.

SPANISH, OR BLISTERING FLIES. *Epispastic.*

Spanish flies, or cantharides, are a species of beetles common in Spain, Italy, and some other parts of Europe.

These insects are used for medical purposes both internally and externally, but are chiefly used to make the common blistering plaster. When the immediate effect of a blister is required, the vinegar of cantharides is the most effectual application. A piece of blotting paper moistened with this fluid raises a blister almost immediately; hence it may prove of essential service when applied behind the ears in toothache, or over the stomach in cases of sudden cramp; and the raw surface produced in this manner affords a ready means of introducing certain medicinal substances into the system by absorption; morphine, for example, when sprinkled upon a portion of the skin which has been deprived of its cuticle, is quickly absorbed, and the patient may be thus relieved where remedies could not be otherwise employed, as in cholera, colic, etc.

CITRINE OINTMENT.

Citrine ointment, which is made with lard and the nitrate of mercury, is an excellent application in chronic ophthalmy, specks, and ulceration of the front of the eye. When reduced in strength by an equal quantity of olive oil or lard, it is a very efficacious remedy for old sores, scald-head, and various diseases of the skin. Citrine ointment, when properly prepared, is of a golden yellow color.

MULLEN. *Verbascum.*

The leaves, a handful to a quart of milk, are a common remedy in bowel complaints.

In the form of fomentation or poultice, it is employed to relieve the piles, and other painful swellings; and in a pulverized state to destroy fungous or proud flesh.

MOULDED NITRATE OF SILVER. *Argent nitras fusus.*

This preparation is restricted to external use. It forms the most manageable caustic that can be used. In some cases it is sufficient to blacken the cuticle; in others it is best to produce vesication. If the pain be excessive, it may be allayed by washing the part with common salt, which acts by decomposing the caustic.

DRIED ALUM. *Alumen exsiccatum.*

Dried alum has the same medicinal properties of ordinary alum, except that it is more powerful and irritant. It is used as a mild escharotic to destroy exuberant granulations, on which it should be freely dusted.

DEMULCENTS AND EMOLLIENTS.

GUM ARABIC.

Gum Arabic is obtained from a genus of plants called *Mimosa* or *Acacia*.

In Morocco, about the middle of November, (that is just after the rainy season), a gummy juice exudes spontaneously from the trunk and branches of the acacia. It gradually thickens in the furrow down which it runs, and assumes the form of oval and round drops, about the size of a pigeon egg, of different colors, as it comes from the red or white gum tree.

When dissolved in water, it is in common use as a demulcent drink, and enters into the composition of many of the mixtures, jujube, and other lozenges, used to allay coughing. It is also sometimes employed in strangury, and at the commencement of gonorrhœa. Gum water is much used by the French in irritation and inflammation of the stomach and bowels; but there is no evidence to show that it possesses any advantage over linseed tea, barley-water, and similar demulcent drinks. Gum Arabic may be taken in any quantity; indeed, the negroes in some parts of Africa subsist on it in seasons of scarcity. Dissolved in twice its quantity of water, it is called mucilage, which is much used to render oils, balsams, and resinous substances diffusible in water, and serves to give consistence to medicines made into pills.

MARSHMALLOW. *Bot. name, Althea officinalis.*

Grows in marshes and wet places. The leaves have a soft woolly surface, feeling like velvet. The flowers are of a pale white flesh color, and appear in August.

Every part of the marsh mallow, and especially the root, when boiled, yields a copious mucilage, on account of which it is employed in emollient cataplasms or poultices, for softening and maturing hard tumors.

Used in colds, dysenteries, and complaints of the kidneys and bladder, for its demulcent properties. The decoction may be drank in any quantity.

QUINCE SEED. *Bot. name, Cydonia vulgaris.*

Quince mucilage may be used for the same purpose as other mucilaginous liquids. It is preferred as a local application in conjunctiva ophthalmia, but in the country is less used than sassafras pith.

SASSAFRAS PITH.

The pith of *Sassafras officinalis*. It abounds in gummy matter, which it readily imparts to water. Much used as a soothing application in inflammation of the eyes; and forms an agreeable and useful drink in dysenteric catarrhal, and nephritic diseases. It may be prepared by adding a drachm of the pith to a pint of boiling water.

LINSEED MEAL, OR FAXSEED MEAL. *Bot. name, Linum usitatissimum*

Flaxseed is a demulcent and emollient. The mucilage obtained by infusing the entire seeds in boiling water, in the proportion of a half ounce to a pint, is much and very advantageously employed in catarrh, dysentery, nephritic and calculus complaints and other inflammatory affections of the mucus membranes. The meal mixed with hot water, forms an excellent emollient poultice.

OLIVE OIL.

A fixed oil from the ripe fruit of *Olea Europa*.

Olive oil is nutritious, mildly laxative and emollient. Externally applied it is useful in relaxing the skin, and sheathing irritated surfaces from the action of the air; and is much employed as a vehicle or diluent of more active substances. But the most extensive use of olive oil is, in pharmacy, as a constituent of liniment, ointments, cerates and plasters.

The dose, as a laxative, is from one to two fluid ounces.

PLANTAIN. *Plantago*.

Has long been employed as an antidote against the bites of snakes, of spiders, and other venomous insects. The juice, when extracted from the whole of the plant, is generally given in doses of two tablespoonfuls every hour, or oftener, until the patient is relieved. It is sometimes given in conjunction with horehound or rue.

The leaves, bruised, are considered by some a good application to fresh wounds.

EXTRACT OF LIQUORICE. *The root of Glycyrrhiza Glabra*.

Liquorice is demulcent, much employed in cough mixtures and frequently added to infusions and decoctions, in order to cover the taste or obtund the acrimony of the principal medicines. A piece of it, held in the mouth, and allowed slowly to dissolve, is often found to allay cough, by sheathing the irritated membrane of the fauces.

DEOBSTRUENTS, OR DETERGENTS.

GALBANUM.

A gum resin obtained from *Ferula galbaniflua*.

Occasionally applied externally as a plaster to indolent swellings, with the view of promoting resolution or suppuration.

BORAX. *Sodii boras*.

When brought in contact with a mucous membrane, borax exerts a peculiar detergent, mild stimulant, or alterative action. It is a very useful remedy in aphthous, or other ulcerations of the mouth, and is employed in hoarseness of public speakers, a lump of it being allowed slowly to dissolve in the mouth. A strong solution destroys the vitality of the yeast plant, and in meats it prevents putrefaction by destroying the infusoria and other microscopic bodies which occasion or support the process. Borax is also a powerful antiseptic.

BURNT SPONGE.

The remedial value of burnt sponge depends upon the presence of iodine in it.

Burnt sponge has been highly recommended in goitre, glandular swellings of a scrofulous character, and obstinate cutaneous eruptions. It is most conveniently administered mixed with syrup or honey, in the form of an electuary, with the addition of some aromatic, as powdered cinnamon, from one to three drachms.

IODINE.

Iodine is obtained from the ash or cinder called kelp, which is procured from burning sea-weeds (*algæ*).

Iodine is principally valued for the extraordinary power it possesses in promoting absorption; hence it is employed in Derbyshire-neck, (*bronchocele*,) chronic enlargements of the liver, spleen, testicles, uterus, etc. In various other scrofulous affections, it is the most efficacious remedy we possess. It is now extensively used in combination with various other substances. The iodide of iron, in the dose of one or two grains, three times a day, is of great service in obstruction of the menstrual discharge, and the iodide or hydriodate of potash, in the dose of two or three grains three or four times a day, is much employed in rheumatism, in secondary venereal affections, as eruptions on the skin, nodes, etc.; and also to promote the absorption of the liquid secreted into the chest in consequence of pleurisy.

As there is apt to be in both these preparations some free iodine, the chief cause of the unpleasant symptoms which they are sometimes said to produce, it is well to direct the patient to eat a bit of bread or biscuit after each dose; the starch of this combining with the free iodine, removes its injurious property, and with this simple precaution, the nervous symptoms so commonly ascribed to iodine may be prevented.

Iodine has been employed with great success in the irritable spreading ulcers which occur in persons whose constitutions have been enfeebled by dissipation and other depressing causes.

The iodide of potash is frequently used externally in the form of ointment. The Dublin pharmacopœia orders a scruple of the iodide to be mixed with an ounce of lard. Ioduretted baths are strongly recommended in the treatment of scrofulous affections.

The dose of the tincture of iodine is ten drops a day, in syrup and water, to be gradually increased to sixty. The preparation of this remedy generally preferred is the hydriodate of potash. Whatever preparation of iodine is employed the dose should be small at first and gradually increased, according to the circumstances of the case. When it produces irritation of the stomach and bowels, it should be discontinued for a few days, and then given in smaller doses.

ANTHELMINTICS.

PINK ROOT. *Bot. name, Spigelia Marylandica.*

Grows abundantly in the Southern States, and is deservedly esteemed a vermifuge, or destroyer of worms. An infusion, a handful to a quart of boiling water, and one or two teacupfuls night and morning, is the usual form and dose. With the addition of milk and sugar, children will take it almost as readily as their tea. It sometimes occasions disagreeable affections of the eyes; when this occurs, suspend the use of the medicine until these symptoms disappear, and then select from another parcel, or make tea of the tops only, as it is supposed the deleterious effects are in consequence of some other root being attached to it.

Pink root is always considered a valuable medicine in fevers, as is verified daily, when given to children in a febrile state for a vermifuge, when no other effect has been produced than a removal of the fever.

MALE FERN. *Bot. name, Aspidium.*

Tonic and astringent. It has had a high reputation for destroying worms especially the tape-worm. Dose of the powder is from one to two drachms, to be given with molasses, every morning and evening, for one or two successive days. It is customary to administer a brisk cathartic directly afterwards.

AMERICAN WORMSEED. *Bot. name, Chenopodium.*

An excellent vermifuge. Dose for a child two or three years of age, is one to two scruples of the seeds in powder, mixed in molasses, and given morning and evening for three days. A brisk cathartic should than be administered.

TURPENTINE.

Oil of turpentine is much employed in destroying worms. To expel the tape-worm it is given in the dose of an ounce and a half to two ounces; and is also used against other intestinal worms in children, in the dose of a teaspoonful, or twice or thrice that quantity according to the age.

An ounce of the oil of turpentine mixed with the yolks of two eggs, and a pint of thin starch, constitutes an excellent clyster (injection) in cases of flatulent colic.

Turpentine is a very useful and safe counter-irritant in all internal inflammatory diseases, after an impression has been made upon the affected organ by blood-letting. A large piece of folded flannel dipped in hot water and wrung as dry as possible, and then freely sprinkled with turpentine, should be applied with the least possible delay, over the part where the pain is most severely felt, and carefully covered with a dry cloth to prevent evaporation; this is to be kept on as long as the patient can bear it, and should be renewed as often as may be found necessary.

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DICTIONARY OF MEDICAL TERMS.

- Abdomen, the belly.
- Aberration, a dislocation or other departure from nature.
- Abnormal, unnatural, irregular.
- Abortion, premature birth miscarriage.
- Abrasion, loss of skin or other membranous surface.
- Absorbents, in anatomy the milk and lymphatic vessels; in therapeutics, the calcareous earth.
- Absorption, the act of taking or sucking up.
- Accouchment, child birth.
- Acetabulum, the cavity receiving the head of the thigh bone at the hip joint.
- Aeoustics, belonging to the ear.
- Alimentary Canal, the entire passage through which the food passes from the mouth to the anus.
- Alopecia, loss of hair, morbid baldness.
- Alterative, medicine intended to change the morbid action, by restoring the healthy functions of secretion, etc. by a gradual process.
- Amblyopia, dimness of sight.
- Amenorrhœa, absence of menses.
- Anæmia, bloodlessness.
- Anasarca, dropsy of cellular tissue.
- Anatomy, to cut, dissection with a view to display the structure, relations and uses of the parts, the science of the structures of organization of bodies.
- Anteversio uteri, the body of the uterus inclining forward.
- Anus, a circle; the fundament or lower extremity of the body.
- Aorta, the great artery of the body.
- Aperient, gentle purgative, laxative.
- Aptha, the thrush.
- Aqueous Humor, watery fluid occupying the front and rear chamber of the eye.
- Artery, the name of vessels which carry blood from the heart.
- Articular, belonging or relating to the joints.
- Asphyxia, a suspension of the heart's action. Suspended animation, as by suffocation.
- Assimilation, conversion of food into the living organism.
- Atrophy, wasting, diminution.
- Auditory, applied to vessels, nerves, canals, etc., connected with the organs of hearing.
- Auscultation, the art diagnosis by listening to the sounds of the lungs, heart, etc.
- Axilla, the arm-pit.
- Axillary, names of vessels, glands, etc., in the axilla.
- Bandage, a strip of linen or flannel used for binding or compressing part of the body.
- Bath, immersion of the whole or part of the body in some medium.
- Bellows Sound, the blowing of the lungs, recognized in auscultation, also, and unnatural sound of the heart.
- Bicuspides, the first grinding teeth.
- Bile, the gall secreted by the liver.
- Biliary, relating to the bile.
- Bolus, a large pill.
- Bougie, an instrument for dilating stricture in urethra and rectum.
- Brim of the pelvis, the bony ring which separates the abdominal

- and pelvic cavities.
- Bronchitis, inflammation of the bronchial tubes.
- Bronchocele, enlargement of the thyroid glands.
- Bubo, an inflamed gland, usually in the groin.
- Cachexy, a vitiated constitution.
- Cæcum, the blind gut, or head of the colon.
- Calculi, stone or gravel, as in the bladder, gall ducts and kidneys.
- Canal, any duct or tube in the body.
- Capsule, membranous bag or sack.
- Carotid, the name of the great artery on each side of the neck.
- Catarrh, a flow of mucus.
- Cerebritis, inflammation of the brain.
- Cervix, the neck.
- Chromatic, pertaining to color or colors.
- Cirrrosis, yellowness, name of that morbid appearance of the liver which is often observed in the post-mortem of drunkards.
- Coitus, the act of venery.
- Colitis, inflammation of the mucus membrane of the colon.
- Ortical, appertaining to, or resembling bark.
- Crepitant, crackling.
- Crepitus, grating of the ends of fractured bones, also, a peculiar respiratory rattle heard in applying the ear to the chest, like that produced by blowing into a dried bladder, or throwing salt into the fire.
- Decidua, a thin external membrane within the uterus, thrown off after each child-birth.
- Dejection, a discharge of the bowels.
- Dementia, idiocy, fatuity.
- Dentition, process of cutting teeth.
- Diabetes, disease characterized by dextrine or sugar in the urine.
- Diaphoretics, medicine favoring perspiration.
- Diaphragm, muscle separating the chest and abdomen, the mid riff.
- Digestion, conversion of food into blood.
- Diploe, cellular structure separating the two tables of the skull.
- Disease, any morbid state, whether functional or organic.
- Dropsy, a morbid, serous effusion into any of the cavities.
- Dysentery, frequent, mucous, or bloody stools.
- Eetropion, eversion of the eye-lids.
- Eczema, an eruption of small blisters.
- Ejaculation, to throw out.
- Electricity, that fluid or property in nature which is developed by rubbing amber or glass, and may be either positive or negative, resinous or vitreous.
- Electuary, a preparation of the consistence of honey.
- Embrocation, a liniment.
- Emetics, medicines producing vomiting.
- Endemic, a disease prevailing within circumscribed district.
- Enuresis, incontinence of urine.
- Epigastric, above the stomach.
- Extravasation, a pouring of blood into cavities, or beneath the skin.
- Facial, belonging to the face.
- Fæces, discharges from the bowels.
- Febrile, belonging to fever.
- Femoral, belonging to the thigh.
- Fever, disease involving the general system, characterized by increasing heat.
- Flatulence, morbid collection of wind in the stomach and bowels.
- Flooding, uterine hemorrhage.
- Fluctuation, sensation recognized by the percussion of cavities containing pus or fluids.
- Fœtus, the young before birth.
- Foramen, a little opening.
- Fundus, the base or bottom.
- Funis, the umbilical cord.
- Gall bladder, receptacle of bile under the liver.
- Ganglia, nervous knots.
- Gastritis, inflammation of stomach.

- Gestation, pregnancy.
- Gland, an organ of secretion.
- Granulation, the filling up of a wound or ulcer by organized matter.
- Gymnastics, active, athletic exercise.
- Hæmatogenic icterus, jaundice with bleeding from the bladder.
- Hæmoglobin, red coloring matter of the blood.
- Hæmoptysis, coughing blood from the lungs.
- Hemorrhage, any morbid flow of blood.
- Hepatic, belonging to the liver.
- Hyaloid, transparent like glass, membrane investing the vitreous humor in the globe of the eye.
- Hypertrophy, morbid growth or enlargement of an organ without change of structure.
- Icterus, jaundice.
- Incision, cut made in soft parts by a sharp instrument.
- Indigestion, dyspepsia.
- Infarction, obstruction.
- Influenza, epidemic catarrh.
- Ingesta, food, drinks.
- Interstitial nephritis, inflammation of the membrane occupying the interstices of contiguous cells within the kidneys.
- Integument, that which covers anything.
- Jaundice, a disease attended with yellow discoloration of the skin and eyes, dependent on obstruction in the biliary excretion.
- Jugular, belonging to the throat.
- Labia, the lips.
- Laceration, tearing.
- Lancinating, sharp, shooting.
- Laryngitis, inflammation of the larynx.
- Ligament, an elastic, tendinous cord.
- Liquor amnii, the water surrounding the foetus in utero.
- Liquor sanguinis, fluid element in the blood.
- Lithotomy, cutting for stone in the bladder.
- Lumbago, rheumatic affection of the muscles of the loins.
- Lymph, thin animal fluid in the lymphatics.
- Malaria, miasm, noxious gases from decomposing matter.
- Malpighian bodies, dark points in the kidneys.
- Manipulation, the art of handling with skill.
- Materia medica, the science of medicines and their combinations.
- Mecomium, the fæces contained in the intestines of a foetus, and passing off after birth.
- Meningitis, inflammation of the membranes of the brain.
- Menorrhagia, excessive menstruation.
- Menstruation, the monthly flow of women.
- Morbid, diseased.
- Obstetrics, science of midwifery.
- Occipital, connected with the back of the head.
- Oculist, one who devotes special attention to diseases of the eye.
- Ophthalmia, inflammation of the eyes, whether external, internal, catarrhal, purulent, serophulous, rheumatic, etc.
- Organ, a part having a determinate office.
- Os, a mouth.
- Ovaria, female testes, two oval bodies appended to the uterus.
- Oxygen, an element of the atmosphere.
- Palliative, medicines affording relief, not cure.
- Palpation, touching, feeling, exploring by the hand.
- Palpitation, morbid mobility of the heart.
- Parenchyma, the spongy and cellu-

- lar tissue that connect parts.
- Parotid, name of the salivary glands beneath each ear.
- Parotis, or itis, mumphs.
- Pathognomonic, indicative of disease.
- Pathological chemistry, chemistry of morbid matter.
- Pathology, the doctrine of disease.
- Pectoral, appertaining to the breast.
- Pelvis, cavity formed by the bones in the region of the hips.
- Periostium, membrane investing the bones.
- Pessary, instrument to support the womb.
- Physiology, that science which relates to the laws of life and the functions of living beings.
- Piles, hemorrhoids, tumors, or enlarged veins, about the neighborhood of the anus.
- Placenta, the after-birth.
- Plugging, introduction of lint or other substance to stop bleeding.
- Portal circulation, a peculiar circulation in the liver.
- Post-mortem, after death.
- Ptosis, palsy of the upper eye-lid.
- Pulse, beating of the heart and arteries.
- Rales, rattles, heard in certain morbid varieties of respiration.
- Rectum, the straight gut, lower portion of the intestines.
- Regimen, a term employed to express the regulation of diet, and the habits of an individual to preserve health, or to cure disease.
- Regions, artificial divisions, of the body, those of chest and abdomen.
- Remittent, applied to diseases whose symptoms diminish very considerably, but return again before they disappear.
- Resolution, dispersion of a disease.
- Respiration, the act of breathing.
- Resuscitation, restoring to life, revivification.
- Retroversion, backward displacement of an organ.
- Rythm, a measured movement, regularity of the action of the heart.
- Roller, a long bandage.
- Salivating, increased flow of spittle.
- Sanguinis, bloody.
- Sciatica, rheumatism of the sciatic nerve.
- Scrotum, bag inclosing the testicles.
- Sigmoid, flexure of the colon, valve of the aorta.
- Sinapism, mustard poultice.
- Skeleton, bones of an animal body.
- Spasm, morbid contraction of muscles, cramp or convulsion.
- Sporadic, confined to some locality; dependent on some occasional cause.
- Sterility, barrenness.
- Stimulant, an exciting agent.
- Stomatitis, inflammation of the mouth.
- Suppression, morbid arrest of some natural discharge.
- Systole, contraction of the heart.
- Tænia, a tape worm.
- Tampon, a plug.
- Taxis, an operation by which parts are placed in their natural position by the hands.
- Tenesmus, pain and difficulty in stools.
- Thoracic, belonging to the chest.
- Tonsils, glands on each side of the throat.
- Traumatic, relating to wounds.
- Tympanites, abdominal distension.
- Umbilical cord, navel string.
- Urea, organic principle of the urine.
- Ureter, canal between the kidneys and bladder.
- Urine, fluid secreted by the kidneys.
- Uterus, the womb.
- Utero-gestation, pregnancy.
- Vagina, a sheath, a passage from the uterus to external parts.
- Vascular turgescence, active congestion of vessels of the system.
- Vein, a long, membranous canal, which returns blood to the heart.
- Venery, sexual indulgence.
- Ventricles, cavities of the brain.





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